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ABSTRACT

This guide provides a nutrition education program for elementary school students that spans kindergarten through Grade 3 as well as providing activities for specific levels. Nutrition education objectives are stated for each grade level: (1) kindergarten--students will become familiar with and motivated to eat a variety of foods; (2) grade one--students will appreciate the importance of nutritious foods to promote growth; (3) grade two--students will recognize that choosing appropriate foods and being physically fit will benefit their health; and (4) grade three--students will understand that food choices are influenced by physical, cultural, and economic factors. An explanation is given of what the students should understand about the objective for each level. Three sections of proposed class activities that encourage students to appreciate the importance of nutritious foods are offered for Grade 1. Section 1 establishes that all living things need food for growth and engery. The next section explores the different plant and animal sources of food. The final section promotes consumption of foods high in protein and calcium. A supplement to this guide contains worksheets, letters for parents, and recipes. A Spanish translation of the letters for parents is provided. (JD)

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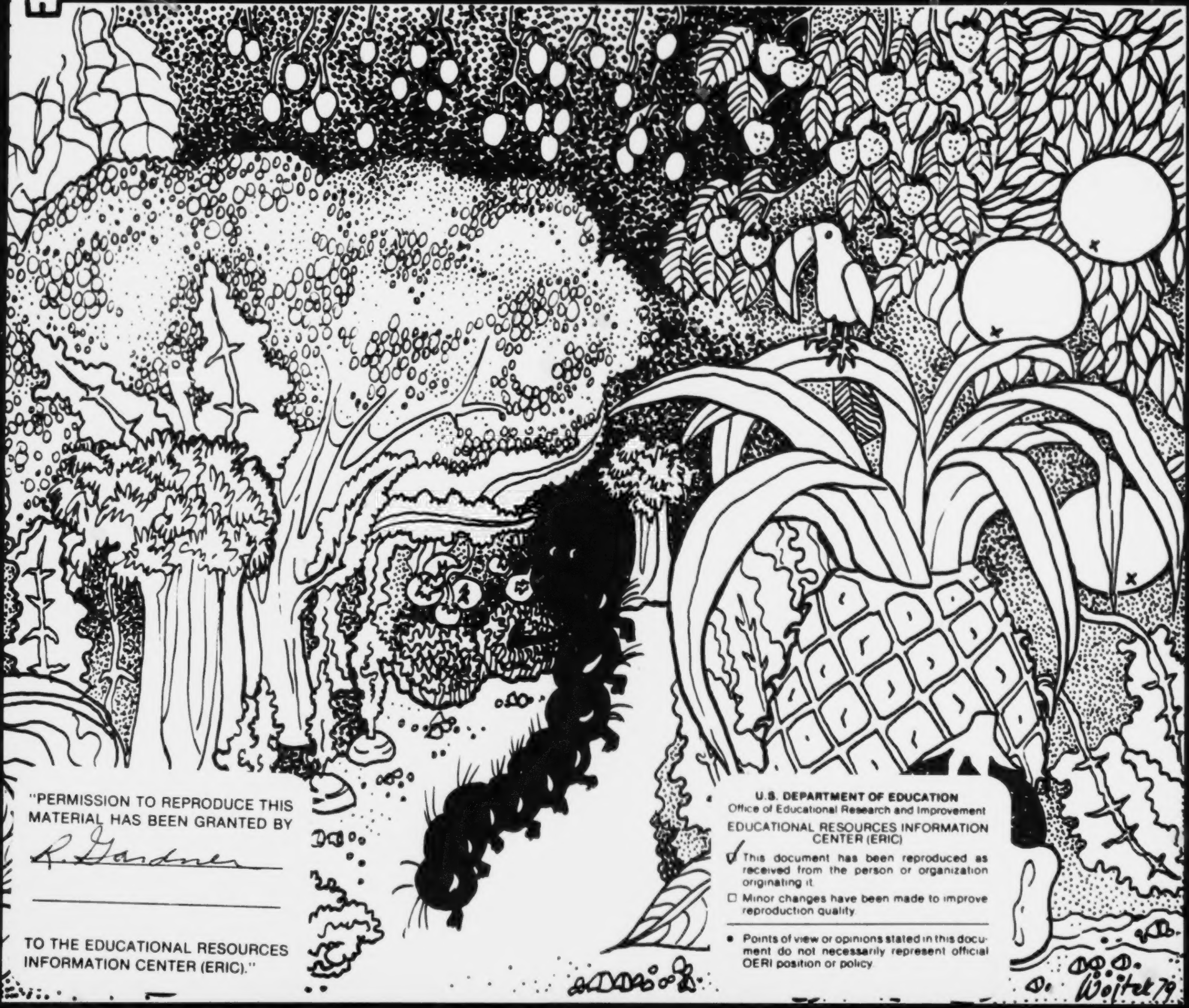
Let's Go Exploring



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NUTRITION COMES ALIVE

Nutrition Comes Alive

Level I
Let's Go Exploring

Nutrition Educator's Guide

A Revision by
Tracy J. Farrell

Based on materials developed by Susan K. Nelson

Division of Nutritional Sciences, a division of the New York State College of Human Ecology and the New York State College of Agriculture and Life Sciences, Cornell University, Ithaca, New York 14853. 1985.

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Acknowledgments

The authors are indebted to the many individuals who contributed their time and talents to the revision of **Nutrition Comes Alive**, Levels K-3. This revision is based on **Nutrition Comes Alive** written by Susan Nelson and Martha C. Mapes in 1980. Parts of Levels K and 1 were adapted from the **Early Childhood Nutrition Program** developed by Jill Randell and Christine Olson.

Without the convictions and support of Matilda Cuomo, this project would not have been possible. She realized a critical need for teaching all children in New York State about nutrition and health. As the First Lady of the state of New York and as a former elementary school teacher, Mrs. Cuomo is well acquainted with the needs of children and their parents.

Special thanks are extended to the elementary school teachers who reviewed the materials at various stages of development. Their comments helped to assure that the activities were appropriate for the grade level and integrated with other classroom subjects. The following teachers in Ithaca, New York, gave generously of their time: Ann Halpern, kindergarten, Central School; Nancy Hewitt, first grade, Caroline School; Roberta Wallitt, second grade, Central School; and Susan Warner, third grade, Northeast School.

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Dr. Contento provided extensive guidance for development of evaluation tools. Her knowledge and enthusiasm helped to assure that the activities reflect contemporary nutrition issues.

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Foreword

Developing Thinking Skills

For children to develop good habits for nutritional well-being, we must help them learn to make intelligent food choices. Making intelligent choices depends on their ability to analyze and evaluate foods within the context of their world, which includes fast-food restaurants, vending machines, and convenience foods. Rather than ignore the influence of such modern-day phenomena, we must teach children to evaluate the foods available from such sources so they can make appropriate selections. As stated by Isobel Contento, Teachers College, Columbia University:

> Today's consumer or learner needs, on the cognitive level, to know how to select from the vast array of foods in the average supermarket those foods he or she needs for optimal health in today's context. He or she also needs to know how to be discriminating about dietary advice that comes, sought and unsought, from a variety of unequally reliable sources such as popular books, advertising, packaging labels, newspapers, and materials from food industry sources or "health" food stores.
>
> On an affective level, the learner needs to learn self restraint—particularly in light of the sedentary life-styles of most Americans, and to develop attitudes toward food selection that are conducive to long-term health.*

Developing the thinking skills of our students seems the most effective way to proceed. If we use practical examples to help students sort out the choices available and identify various nutritional options, we are helping them face this complex world of food and eating. Therefore it would seem more important for students to be able to differentiate between opinion and fact when viewing advertisements than to be able to recite the nutrients in a given food. It may be more important for them to be able to search out and decipher the key nutritional information on a label than to name food groups important to health. If overnutrition is a problem involving excess fat, sugar, salt, or total calories, students need to be able to think about how to make modifications in food choices and ingredients within their own family and cultural traditions.

In other words, the focus of teaching should shift from transferring information to the student to processing information by the student; at least, we should strive for a better balance. Teachers can help provide practical situations so students can use their thinking skills to take increasing personal responsibility for their food choices. This curriculum guide is offered as a way to help make this goal possible.

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*Isobel Contento, "Thinking about Nutrition Education: What to Teach, How to Teach It, and What to Measure," *Teachers College Record* 81 (Summer 1980):422-23.

Preface

Why Nutrition Education

Our diets are shaped early in our lives by emotional, cultural, and social forces, as well as by the availability of certain foods. Traditions, food habits of parents and friends, and food advertising are some factors that influence American diets. Bombarded by numerous options, children should not be expected automatically to select nutritious foods. They must learn how to make nutritious choices from the array of foods available.

The ultimate goal of nutrition education is to provide knowledge and to foster skills that will promote nutritionally sound eating practices, which in turn contribute to an individual's nutritional well-being and overall health. Nutrition education should begin when children are young and in the process of developing their eating habits. Early positive experiences with nutritious foods help create a foundation for lifelong eating habits, nutritional awareness, and attitudes that facilitate good health.

Overview of Nutrition Education, Grades K-3

For each grade level one major nutrition objective is supported by several understandings. The suggested activities and work sheets are intended to help students achieve the understandings and objectives.

Grade Level	Objective/Understandings
Kindergarten	Objective: Students will become familiar with and motivated to eat a variety of nutritious foods. Understandings: 1. Food is something to eat. It has distinctive textures, shapes, and smells. 2. There are many different kinds of nutritious foods. 3. Some foods are better than others for good health.
Grade 1	Objective: Students will appreciate the importance of nutritious foods to promote growth. Understandings: 1. All living things need food for growth and energy. 2. Plants and animals provide us with food. 3. Certain foods are especially important for children's growth.
Grade 2	Objective: Students will recognize that choosing appropriate foods and being physically fit will benefit their health. Understandings: 1. There are many foods that can be chosen for good snacks. 2. Some snack choices are more nutritious than other choices. 3. Exercising regularly contributes to physical fitness and good health.
Grade 3	Objective: Students will understand that food choices are influenced by physical, cultural, and economic factors. Understandings: 1. Sensory perceptions influence food choices. 2. Food choices take place within the context of immediate family, social, and community groupings. 3. Advertising, especially on television, influences food choices.

Nutrition Comes Alive

A Practical Classroom Tool

Nutrition Comes Alive is a nutrition education program for elementary school students. The guide for each grade level contains information relevant to the entire span K to 3 as well as activities for the specific level. The material for each grade level is intended to help you provide students with a multitude of learning opportunities. The activities, designed to stimulate student interest, are presented in an appealing, easy-to-use format. Special features of the K-3 guides are detailed below.

Provides Flexibility

The guides encourage flexibility and creativity in the classroom. They are not a prescription for teaching. Instead, a wide range of possible activities is presented so that you can select and structure learning experiences to meet the needs of your students. You may schedule nutrition education activities throughout the school year or introduce them as units.

Focuses on Today's Concerns

With changes in lifestyles and eating patterns over the past fifty years, Americans are more likely to be affected by dietary excesses than by deficiencies. To help children make wise food choices within the context of our modern society, nutrition education must include current nutrition-related health concerns. Consequently, the material in the guides reflects such contemporary issues as the selection of nutritious snacks, the importance of physical activity for fitness, the effect of advertising on food selection, and the desirability of limiting dietary intake of fat, sugar, salt, and calories.

Integrates Activities

A key feature of the materials is that they may be integrated with other established academic subjects. Nutrition does not have to be taught as an isolated subject. It is a recognized part of most science, health, and social studies textbooks. The upper right-hand corner of each activity sheet indicates the subject area into which the activities best fit, for example, language arts, math, social studies, science, music and art, or health and fitness. Check through the activity sheets before planning your schedule so you will know what activities best integrate with other subjects.

Promotes Active Learning

The materials engage students in active learning. Such "hands-on" activities as tasting and preparing foods, identifying personal food preferences and habits, determining ingredients in different foods, and measuring growth all stimulate learning by directly involving students.

Participating in these activities gives students a chance to think, feel, and act.

Includes Motivators

Special motivators, such as puppets, songs, illustrations, and catchy titles or slogans entice students to learn about nutrition. The guides contain many attractive and exciting motivators that will appeal to students on both affective and cognitive levels.

Evaluates Learning

Like other components of the school curriculum, nutrition education must be evaluated to determine whether the desired outcomes have been produced. It is not easy to evaluate whether the goal of promoting behavior that fosters good health has been achieved. How students apply knowledge to nutrition and health-related issues is even more important than their increase in knowledge. Therefore, whenever possible, the evaluation should include ways to measure changes in underlying attitudes and in behavior. To facilitate this evaluation, the teaching materials in the nutrition education guides provide various tools for monitoring students' nutrition learning.

Observation: Observing students in the classroom enables you to evaluate changes in their behavior. For example, during sociodramatic play, do students serve milk rather than soda? When cooking, do students demonstrate that they know how to use new ingredients and utensils? Do they bring more nutritious foods for snacks and lunches than they did before they studied nutrition?

Verbal Wrap-Up: Students should summarize what they learned from a particular lesson in their own words. What did they learn about snacks? What foods are most nutritious for snacks? Such a wrap-up gives students a sense of accomplishment and helps them remember key points.

Application of Learning: You can ask students to apply their knowledge or skills in new situations. After learning to read labels, they could be asked to select the food lowest in fat or the cereal with the least sugar from among several products. They could use their knowledge about nutritious foods to plan a class picnic, to launch an advertising campaign in the cafeteria, or to prepare a new vegetable for dinner at home.

Repetition: Repeating certain classroom activities or work sheets will show whether students have changed their attitudes or values about particular issues. Are students better able to separate opinions from facts after studying food advertising?

Parent Feedback: By participating in conferences, parents can provide additional evaluation information. Do parents report that their children are requesting new vegetables for meals? Are the children more eager to brush their teeth at home? Such informal information can help you judge whether the nutrition program had a desirable impact.

Encourages Parent Involvement

New ideas in any subject are always learned better if they are reinforced in the "real world." Home and family are important parts of a child's world. Parents have a strong interest in their children's health and growth, and parents also control what foods are available in the home. By working together, parents and teachers can double their impact on children's eating practices.

You can encourage parents to participate in many different classroom activities. For example, cooking activities usually run more smoothly when an extra adult helps. Or a parent with special expertise might talk to the class or demonstrate a skill. Parents can also be invited to attend open houses or special events or to go on class trips.

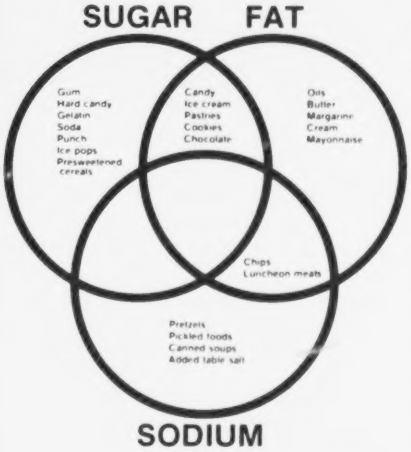
Another way to involve parents is by making a special effort to let them know what is happening in the classroom. You can share information about your class nutrition projects, and students can take home their work sheets, stories, recipes, snack information, and letters that are included in the units.

Encourages Food-Service Involvement

The food-service personnel in your school may assist you with different food-related activities. They may be able to provide ingredients, equipment, utensils, and advice about foods and cooking safety. If you want any special help from food-service personnel, be sure to plan ahead so you can ask them well in advance of the time you need their help.

Ask your food-service staff to give the class a tour of the kitchen, or ask whether a class cooking activity could be done in the kitchen. Invite a staff member to demonstrate a simple food preparation technique. The possibilities are endless. When the classroom and cafeteria are brought together, they can maximize their impact on children's food habits.

Some Key Nutrition Issues



Sugar

Sugars are natural components of some foods. Fruits and some vegetables contain sugars, along with important vitamins, minerals, and fiber. Unlike fruits and vegetables, however, many food products contain large amounts of added sugar (sucrose, dextrose, honey, fructose) and contribute little more than kilocalories. When these "empty-calorie" foods and beverages replace more nutritious choices, getting enough nutrients without too many calories may be a problem. Even the increasing use of artificial sweeteners does not solve the problem of soft drinks replacing a more nutritious choice such as milk. Foods such as sugared milk products, ice cream, custards, and puddings can be considered "good" in moderation because they contain protein and calcium. But eating too many sugary products may contribute to obesity and is a major factor in tooth decay.

Dental Health

Not only are dental problems widespread in the United States, but professional dental care is expensive. Therefore it is important to begin good diet and health habits early in life.

Sugar (sucrose) is the preferred food of cavity-causing oral bacteria. When sugar is available, the bacteria eat it, forming acid. The acid weakens the tooth structure and promotes tooth decay. More critical than the amount of sugar ingested at any one time are the frequency and duration that sugar is available to oral bacteria.

Sugary snacks are of particular concern because they increase the frequency of sugar exposure and may also increase the duration of exposure. For example, soft drinks that are sipped and sticky candies that adhere to the tooth surface keep sugar available to oral bacteria for extended periods of time, especially if they are eaten as snacks. When sweets are eaten with meals, other foods tend to buffer the acid formed and also assist in removing sugar from the teeth.

Fats

Fats provide kilocalories and essential fatty acids. But only a small amount of dietary fat supplies all the essential fatty acids. A recent concern is that Americans derive too many of their daily kilocalories from fat. Not only may this high fat consumption lead to obesity, but one class of fats appears to be an important factor in heart disease.

Studies have shown that saturated fat, found mainly in animal products, tends to contribute to heart disease, whereas unsaturated fat may not. Cholesterol, a substance found only in animal fat, has been implicated in heart disease. The primary source of unsaturated fat is safflower, sunflower, corn, and soybean oils. Coconut and palm oils contain higher amounts of saturated fats.

In light of these findings, it has been suggested that people decrease the amount of saturated fat they eat. It has been further recommended that Americans decrease their total fat consumption from the present level of about 40 percent of total calories to 30 percent.

Sodium

Hypertension or high blood pressure can be a nutrition-related health problem. Large intakes of sodium, mostly in the form of common table salt, are implicated in causing high blood pressure in susceptible persons. Lowering sodium intake and achieving reasonable weight help control hypertension.

Many advertised snack foods are very high in sodium. Potato chips, salted pretzels, and some crackers are examples of high-sodium foods. It is encouraging that new low-sodium forms of these favorite snacks are now on the market. Canned vegetables without added salt and low-salt cheeses are also now available. Cutting down on sodium is one way to build better food patterns for the future.

Iron-Deficiency Anemia

A recent survey found that 61 percent of children in the United States were receiving less than the recommended dietary allowance for iron. A continual low iron intake increases children's risk of developing iron-deficiency anemia.

Anemia is caused by a lack of dietary iron needed to form hemoglobin, a compound in the blood that carries oxygen to the cells. Symptoms of anemia include fatigue, weakness, irritability, and pallor.

Meat, poultry, dried beans, and dark green vegetables can help meet the iron requirement. In addition, unsweetened fortified cereals, whole and enriched breads, and dried fruits are iron-rich foods that make appealing snacks. Since vitamin C increases the absorption of iron, citrus fruits and juices are good companions to high-iron meals and snacks.

Calcium Concern

Bone health is a key concern of both youth and adults. Interest has always focused on supplying necessary calcium and vitamin D for the formation of bone in growing infants and children. Increasing concern about osteoporosis has caused us to search out information about maintaining bone health during our mature years.

Our bones are in a state of constant flux, serving as banks in which calcium can be deposited and withdrawn. Although 99 percent of the body's calcium is in the bone, the other 1 percent circulates in the blood and is vitally important for normal nerve transmission, muscle contraction, heart function, and blood clotting. When this small but critical amount falls below a certain concentration, the bones release some of their calcium.

Low intake of calcium-rich foods during the adult years compromises bone health. Adults need calcium just as much as growing children do. Prolonged deficiency of calcium through the adult years may increase the risk of osteoporosis, a disease seen particularly in postmenopausal women and characterized by weak and fragile bones.

Since bone mass reaches its maximum when a person is about the age of 35 and declines as part of the aging process thereafter, people of all ages need to be aware of their intake of milk and such other sources of calcium as leafy green vegetables, broccoli, and fish with edible bones such as sardines, canned salmon, and fresh smelt.

Because calcium is important throughout life, students should establish habits of calcium consumption that they will follow throughout their lives.

Obesity

Obesity is a major health problem in the United States today, for both adults and children. Why is excessive weight a health concern? In adults, the prevalence of diabetes, hypertension (high blood pressure), and atherosclerosis (heart disease) increases with obesity. The concern for children is that obesity will persist into adulthood and result in health problems. Overweight or obese children also may be troubled by emotional and social problems.

What can be done? All children can be encouraged to be very active all year round. Extra attention should be paid to children with weight problems, to be sure that they find an activity they can do and enjoy—and that they continue to do it. Parents and children should learn about the problems of overeating. Good habits can be developed early. Many families are concerned about wasting food at the dinner table. Food waste, however, starts in purchasing and preparation. A good eater is a moderate eater, not a big eater.

Energy Balance

Kilocalories (energy) are needed to support life and growth. Eating too few kilocalories can result in poor health and, in children, can limit growth. On the other hand, eating more kilocalories than required can also result in poor health. Overweight, and especially obesity, can increase the risk of developing many health problems. The amount of kilocalories that a person needs for health depends on the amount of energy that he or she uses for basic body processes and for physical activity.

Carbohydrates, proteins, fats, and alcohol are the food components that give us kilocalories. Carbohydrates, proteins, and fats are essential nutrients; alcohol is not. But there are other essential nutrients that we must eat to be healthy: minerals, vitamins, and water. Although these nutrients do not supply kilocalories, they can be found in many foods that do. Each class of nutrients is important for a variety of body functions. Therefore, the foods in our daily diet must be carefully selected to supply all the essential nutrients without exceeding our kilocalorie requirements.

Energy = Kilocalories
Kilocalories = Calories

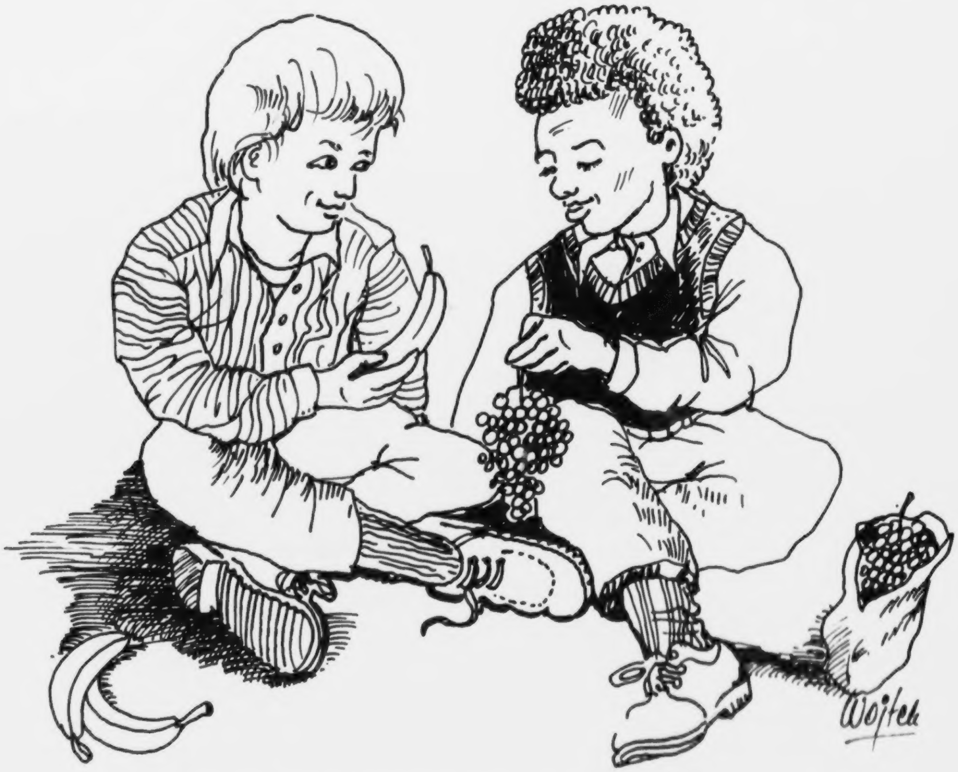
What is a kilocalorie? The energy value of a food is expressed as a unit of heat, a kilocalorie. This term is more correct than Calorie, or calorie, which is often used instead.

A kilocalorie (kcal) represents the amount of heat required to raise the temperature of one kilogram of water one degree Centigrade. Another way to think of this amount of energy or heat is to realize that one large apple, which contains about 100 kcal, provides enough heat to raise the temperature of slightly over four cups of water from 0 degrees C (freezing) to 100 degrees C (boiling). Four and a half cups of shredded cabbage or one tablespoon of peanut butter has a similar energy potential.

Fiber

The fiber found in our diets is not just one compound but a complex grouping of many substances found in cell walls of plants. These include cellulose, hemicellulose, and pectins as well as lignin, which is not a carbohydrate. In simple terms, dietary fiber refers to components of plant cells that the body does not digest and absorb.

Most nutritionists agree that dietary fiber is important, but many of the benefits that have been claimed have not been proved. At the present time, the most clearly established benefit of dietary fiber is that it helps to relieve or prevent constipation. There is some evidence that it is beneficial in preventing or treating diverticular disease. It has also been suggested that fiber may reduce the risk of cancer of the colon and heart disease and help control diabetes and obesity.

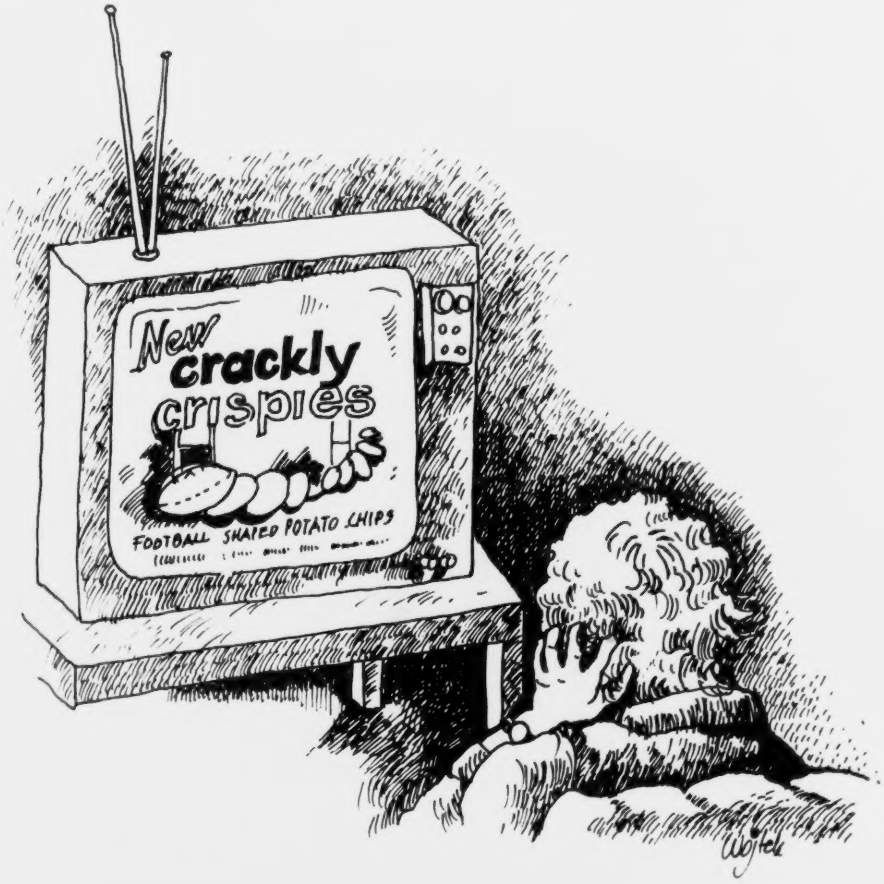


But although fiber is important in the diet, just because some is good, a lot is not necessarily better. Large doses of purified fibers may increase the excretion of some minerals, but it is unlikely that a mineral deficiency will develop if moderate amounts of fiber are eaten as part of a normal diet.

The best advice is to increase dietary fiber by eating more fresh fruits and vegetables, whole-grain bread and cereal products, beans, and nuts. With this approach you are not likely to consume excess fiber and you will get a variety of types of fiber, each of which might have a different benefit. In addition, these foods supply vitamins and minerals.

Snacks—A Nutritional Plus or Minus?

Many people tend to think of between-meal snacks as "junk" food or "empty-calorie" food, but it is not necessarily true. The problem is the candies, soft drinks, cookies, and potato chips that are often eaten exclusively for snacks in place of nutritious foods. These foods offer few nutrients but are loaded with excessive calories. By learning to choose snacks carefully, children can avoid overly sweet or salty and high-fat snacks in favor of more nutritious fruits, vegetables, grain products, and milk. Nutritious snacks actually improve the nutritional quality of children's diets.



Children and Food Advertisements

Every day we are bombarded by food ads through newspapers, magazines, direct-mail ads, radio, and, of course, television. Children watch an average of 27.5 hours of television per week and more than 20,000 commercials per year. It has been estimated that 60 percent of all commercials aimed at children are for food, and unfortunately, the majority are nonnutritious foods and food products. With this exposure, the food ads undoubtedly have a tremendous impact on the way children think about food. It is not a simple problem to deal with, but through guidance from parents and teachers, children can learn to question what they see on television and become aware of the selling intent of ads. Repeated positive experiences with nutritious foods can help children learn to desire and choose healthy foods.

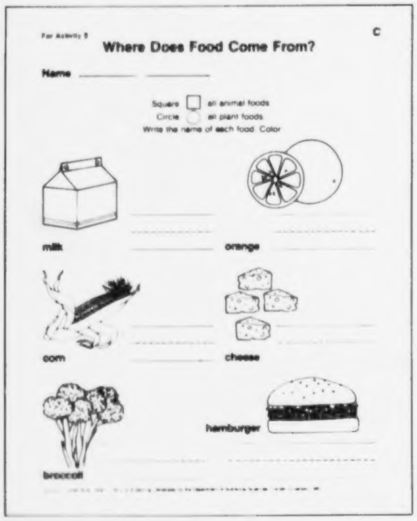
Using *Let's Go Exploring*

Nutrition Educator's Guide

Let's Go Exploring contains three sections of proposed class activities. The understanding for each section is listed on the section divider.

Section 1 establishes that all living things need food for growth and energy. Section 2 explores the different plant and animal sources of foods we eat. Section 3 promotes the consumption of foods high in protein and calcium, two nutrients especially important for children's growth. All three sections encourage students to appreciate the importance of nutritious foods for growth.

To help you plan for each lesson, a section at the top of each activity sheet tells what advance preparation is needed. Any work sheets needed for that lesson's activities are listed as well as films to order, books to borrow, and food ingredients to assemble.



C

Where Does Food Come From?

Name

Square ☐ all animal foods

Circle ○ all plant foods

Write the name of each food. Color

Integration

Each of the nutrition activities may be integrated into other academic subject areas as noted on the teacher activity sheets. Activities were coordinated with the first grade curriculum of New York State. For more ideas on how to integrate nutrition learning into other subjects, refer to the specific curricula for science, math, health, social studies, and language arts.

Student Work Sheets

Let's Go Exploring also contains work sheets that you can photocopy or make into dittos for distribution to the class. Suggestions for using these work sheets are found on the teacher activity sheets. The work sheets are in a separate section following the three activity sections.

Resources

Any books or films needed for a particular activity are noted on the activity sheets. More complete information about the resources is listed on the back of the appropriate section dividers.

Letters to Parents

To help involve the parents in their children's learning, ***Let's Go Exploring*** includes three letters that can be copied and sent home with the children. The letters give parents nutrition information, recipes, and activities to do with their children in conjunction with the activities that are taking place in the classroom.

Evaluation

Each section contains a final activity sheet with several suggestions to help you evaluate student learning. Helping students verbalize and demonstrate what they have learned is vital.

Resources

Nutrition Education Programs

Creative Food Experiences for Children. M. T. Goodwin and G. Pollen. 1974. Available from CSPI, 1755 S St. NW, Washington, DC 20009.

This excellent teaching guide includes basic nutrition concepts, nutritional values of different foods, and nutrition activities, resource materials, and recipes.

Cookbooks for Children

A Child's Cookbook. B. Beitch, T. Harms, T. Wallace, and G. Wallace. 1981. Available from 656 Terra California Drive #3, Walnut Creek, CA 94595.

The kit includes a cookbook and teacher guide. Single-portion recipes for home and school are provided in an illustrated, easy-to-use format. Many ethnic recipes are included.

Pictures of Foods

The Buying Guide for Fresh Fruits, Vegetables, Herbs, and Nuts. Educational Department, Blue Goose, Inc., P.O. Box 46, Fullerton, CA 92632.

An excellent source for color photographs of fruits and vegetables.

Food Models. National Dairy Council. See Appendix 1 for a listing of local Dairy Council offices.

Life-size color photographs of 146 foods can be used in a variety of teaching situations. Nutrient values and their contribution to the U.S. RDA are printed on the back of each model.

Basic Nutrition Information

Nutrition: Concepts and Controversies. E. M. Hamilton, E. N. Whitney, F. S. Sizer. St. Paul, MN: West Publishing Company. 3d ed. 1985.

This introductory textbook presents basic nutrition concepts and current issues in an easy-to-read, personal style. Many informative tables, charts, and drawings are included within each chapter. Each chapter concludes with an in-depth discussion of a controversial issue such as diet and heart disease, diets for athletes, and the effect of sugar on behavior of children. An extensive appendix includes a table of food composition and many additional facts.

Jane Brody's Nutrition Book. J. Brody. New York: Bantam Books. 1982.

Written for the general public, this book provides information on a number of current issues in nutrition. The dietary guidelines, cholesterol, fiber, sugar, food additives, food labels, sodium, fad diets, and fast-food eating are among the many topics discussed in 27 chapters.

Nutritive Value of Foods. Home and Garden bulletin 72. U.S. Department of Agriculture. Available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Revised 1985.

This bulletin contains nutritive values of commonly used foods. Values for fat, fatty acids, cholesterol, carbohydrate, calcium, phosphorus, iron, potassium,vitamin A, thiamin, riboflavin, niacin, ascorbic acid, and sodium are included.

County Cooperative Extension Association. Addresses of local offices are listed in the appendix.

Cooperative Extension agents are able to answer questions and provide nutrition resources.

National Dairy Council. Addresses of local offices in New York State are listed in the appendix.

The National Dairy Council offers extensive and excellent nutrition education resources for the classroom. Reference to its annual catalog will help you select appropriate resources to match the ability levels of your students.

Note: Specific resources needed for activities in each section are listed on the back of the appropriate section dividers. You may need to order films well in advance of when they are needed.

Nutrition Educator's Guide

Objective for Level I

Students will appreciate the importance of nutritious foods for promoting growth.

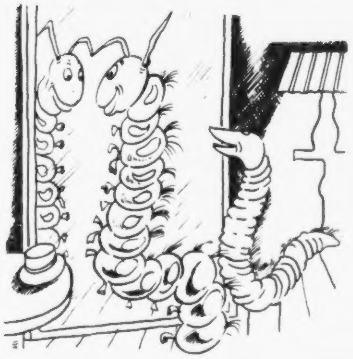
Section 1

Let's Go Exploring

Exploring Growth and Energy

Understanding:

All living things need food for
growth and energy.



Before You Start

Exploring the relationships between food, growth, and energy provides an exciting way for students to discover why food is important. Through a series of thought-provoking experiments, projects, games, and stories, students will learn why all living things, including animals, plants, and people, require different foods.

The activities in this section focus on food in general as a source of energy and an aid to growth; they do not promote specific foods or nutrients. The activities set the stage for later learning in Section 3 about some specific nutrients that are essential for growth.

Activities	Subject
1. Food for Growth and Energy	Science, Language Arts
2. Fuel Up	Science
3. Breakfast Morning Energy	Health, Math
4. Exploring Animal Growth	Science, Math
5. Exploring Plant Growth	Science
6. I'm Growing Too	Math
7. Hey! That's Me!	Language Arts
8. Evaluation	Science, Language Arts

Resources

My Lunch Box. K. N. Daly. Racine, WI: Western Publishing Co., 1977.
On his way to school David wishes that he could have different foods in his lunch box for a change. But when he compares his lunch with those of a cat, dog, rabbit, mouse, pig, and squirrel, he decides that he likes his own best.

Is This My Dinner? I. Black. Chicago: Albert Whitman, 1972.
In poetic verse a differentiation is made between food for people and food for many animals, including dogs, cats, and horses.

What Do Animals Eat? R. Gross. New York: Scholastic, 1971.
Information is given on the foods of mammals, fish, insects, reptiles, and people. The book illustrates that although different animals eat different foods, all animals require some kind of food.

The Chicken and the Egg. Oxford Scientific Films. Putnam Publishing Group, 1979.
Color photographs show the development of chickens, from embryo to hen.

Addison-Wesley Science, Level 1. V. Rockcastle, B. McKnight, F. Salamon, V. Schmidt. Menlo Park, CA: Addison-Wesley, 1984.
This science textbook contains many activities that complement the activities in this section.

Seeds and More Seeds. M. E. Selsam. New York: Harper and Brothers, 1959.
A young boy named Benny enthusiastically plants all kinds of seeds and watches them grow.

Activity 1

Science, Language Arts

Understanding that food provides energy and promotes growth

Food for Growth and Energy

Advance Preparation

Make a Munch puppet. (See directions on next page, or use an existing puppet.)

Copy the six-page story A, "Squirm Worm Visits Munch," for each student.

Squirm Worm Visits MUNCH

Story By
Susan Kay Nelson

Munch Learns about Food

Introduce Munch to the class as a fuzzy green caterpillar who will help them explore where food comes from and how it helps us grow and gives us energy.

Read the story "Squirm Worm Visits Munch" using the Munch puppet on your hand as the storyteller. The students can follow along and turn the pages as you read. Then they can color the story and take it home to share with their parents.

Questions for conversation:

—Why did Munch look different to Squirm Worm?

—What did Munch do each day? Why?

—What did Munch do to have the energy to play?

—Have you ever felt weak because you were hungry?

—What made Munch grow? What makes you grow?

—Besides getting taller, what other ways did Squirm Worm say you can grow?

—What foods and drinks did Munch eat to help him grow and feel great?

—Which of these foods do you eat?

—What other foods and snacks do you eat?

Reinforce the story's key points. We need food for energy, and we need food to help us grow.

Living Things Need Food

Emphasize that all living things need food for energy and growth. Point out that all living things grow, but that growth does not always mean getting taller or heavier. When hair or nails get longer and cuts heal it is also growth.

Ask the students to look around the class and name several living and nonliving things.

Questions for conversation:

—How are living things different from nonliving things? (Living things grow. They also move—plants move toward light as they grow—reproduce, and use air, food, and water.)

—What foods do the living things need to have energy and to grow? (People need many kinds of food, different animals and plants need other specific foods.)

Additional Activities

- Have the students draw or cut from magazines pictures of living things to create a bulletin board display entitled "We All Need Food."
- Read ***My Lunch Box*** by K. Daly (see Resources, Section 1). Discuss the foods that different animals eat. Do they eat any of the same foods that people eat?

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How To Make Munch

Sock puppet

Materials:

an ordinary sock (crew or knee sock)

bright red, orange, or yellow felt squares

scissors

glue

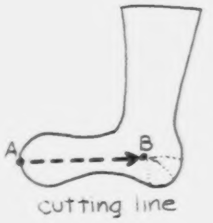
yarn needle

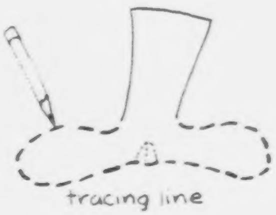
yarn or string

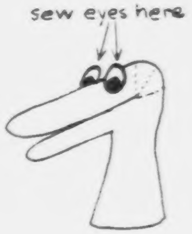
buttons, ball fringe, or ping-pong balls for eyes

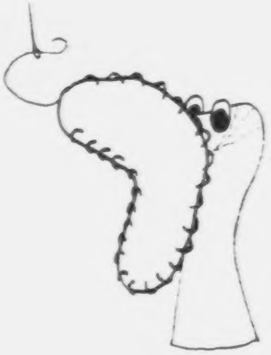
Instructions:

1. Lay the sock flat in the shape of a foot.
2. Cut the foot into top and bottom halves as shown. Cut through both sides of the sock, beginning at the middle of the toe (A) and cutting in a line to the edge of the heel seam (B).
3. Open the sock out flat and trace the opening on a piece of bright-colored felt. Cut out the felt "mouth."
4. Make eyes from buttons, ball fringe, ping-pong balls, or other materials. Glue or sew them on, holding the sock so that the heel forms the back of the head.
5. Sew the felt mouth in place with big overcast stitches, using yarn or string.









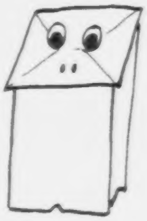
Paper bag puppet

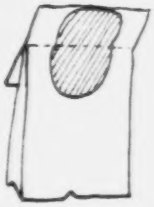
Materials:

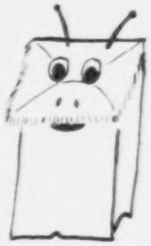
brown lunch bag

crayons or colored felt-tipped markers

(colored construction paper, scissors, glue)







Instructions:

1. Lay the paper bag flat with the bottom folded over to form a flap.
2. Draw and color in eyes and nostrils on the flap.
3. Fold the flap back. Draw and color in Munch's mouth below the fold line, as shown.
4. Make additional features, such as fringe or antennae, from colored construction paper, if desired.

Fuel Up

Advance Preparation

Collect pictures of cars, trucks, motorboats, planes, and children playing, eating, and sleeping.

Food for Energy

Show the pictures to the students and discuss what each picture illustrates.

Questions for conversation:

—What do cars, trucks, boats, and planes use for fuel? (Gasoline or diesel fuel.)

—What happens when a car, truck, boat, or plane runs out of fuel? (It won't go.)

—What do you use for fuel to make your body go? (Food.)

—What happens if you do not eat food? (You get tired and hungry and don't have any energy.)

—Why? (Food gives you energy to work and play just as gasoline gives vehicles energy to go.)

—Which pictures show children using the most energy? The least?

—What happens if you eat too much? (You feel too full or maybe even sick. You can also get fat.)

Point out that eating too much can give us more fuel that we can use immediately so it is stored as body fat. Exercise helps us use extra food energy. If we don't exercise, the fuel is stored as body fat.

You can highlight this concept by explaining how bears hibernate through the winter. During the summer and fall bears eat a lot of food that is stored as body fat. When bears hibernate they do not eat but instead use their stored fat as food.

Using Energy

Students can see how exercise affects the amount of energy their bodies use by feeling their heartbeats. First, ask the students to locate a pulse point by placing three fingers by the side of their windpipes. Explain that what they feel is their heart pumping blood. Time them for ten seconds, and have them count the number of beats they feel. Ask them to record these numbers.

Then have them jump in place twenty-five times. When they stop, have them again count their heartbeats for ten seconds and record the number of beats. Did their number of heartbeats increase? By how much? Explain that as they moved faster, their hearts pumped faster and used more energy. The energy came from food they had eaten.

Note: If this activity would be too chaotic for the whole class, you might have one or two students demonstrate it.

High-Energy Favorites

Ask the students to name some of their favorite activities. Which of the activities require lots of energy? Which require little? Point out that high-energy activities use arms and legs for "action." Make lists on the board of high- and low-energy activities. Such activities as running, jumping, swimming, and bicycle riding require lots of energy, but watching TV, coloring, or reading require less energy.

Have the students do some of the high- and low-energy activities in the classroom or on the playground. Do they feel any different after a high-energy activity than after low-energy activities? They probably feel good when they run and move even though they may pant and perspire at first. Reinforce the idea that being active is important for feeling and looking good and being fit.

Additional Activities

- Have the students draw pictures of favorite activities that require lots of energy from food. Help them label their pictures before they take them home to share with their families.
- Play "Do the Hokey Pokey" as a high-energy game. Have students dance to invigorating music, or encourage them to play active relay games or tag during recess.

Activity 3

Health, Math

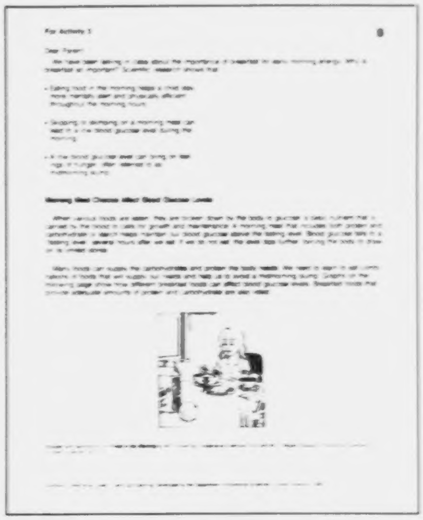
Understanding that breakfast contributes early morning energy

Breakfast Morning Energy

Advance Preparation

Bring a clock or a cardboard clock model.

Copy letter B to parents for each student.



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A Long Stretch

Breakfast is especially important because it provides energy to start morning activities. Use a clock to help students determine how many hours pass between the last time they eat in the evening and breakfast the next morning. How many hours between breakfast and lunch? Between lunch and dinner? Between meals and snacks? On the chalkboard write the average number of hours between the different meals.

Emphasize that because of the long stretch between dinner or snacks eaten in the evening and breakfast, the body gets low in food energy. To have energy for work and play it is especially important to eat breakfast.

Breakfast Ideas

Ask the students to name foods they eat for breakfast. Encourage them to list any not-so-common breakfasts such as a piece of cold pizza or a tuna sandwich, as well as the more usual cereals and eggs. Assure them that foods eaten for dinner or lunch can also be eaten for breakfast. List the foods on the chalkboard. Ask the class to raise hands to show how many students have ever eaten each food for breakfast. Record the responses for each food. How many students ate each of the foods? Then help the students think of alternative breakfast ideas.

Examples include

Whole-wheat toast with cottage cheese and cinnamon, grapefruit juice

Leftover pork chop, orange juice

Peanut butter sandwich with raisins, orange slices

Yogurt topped with fruit and unsweetened cereal

Banana milk shake, bagel

Explain that any combination of nutritious foods, not just the so-called "breakfast foods" like eggs or cereal, can give us good breakfast energy. To avoid a midmorning slump it is important to eat at least one food high in protein such as peanut butter, milk, cheese, or egg. It is also wise to avoid eating too many foods that are high in sugar such as doughnuts or sweet rolls and foods high in fat and sodium such as bacon and sausage.

Letter to Parents

To help involve the parents in their children's learning, give each student a copy of letter B to take home. The letter emphasizes the importance of eating a nutritious breakfast and includes breakfast ideas. Review each idea with the students before they take the letters home. Have them share in class any breakfast ideas that they tried.

Additional Activities

- In class make one of the simple breakfasts listed on the letter for parents.
- Have the students draw pictures of "unusual" breakfasts that would provide them with early morning energy.

Activity 4

Science, Math

Identifying foods that animals eat and observing animal growth

Exploring Animal Growth

Advance Preparation

Bring the Munch puppet.

Obtain a pet for the classroom or plan a field trip to observe growing animals.

Food for Animals

Use the Munch puppet to ask and discuss the following:

—Are animals living? (Yes.)

—How do you know? (They move, grow, reproduce, and use air, food, and water.)

—What gives animals energy and helps them to grow and to move? (Food.)

—Name some animals and the foods they eat.

—Do you have pets? What do they eat?

For more information about what animals eat, read the books ***Is This My Dinner?*** by I. Black and ***What Do Animals Eat?*** by R. Gross. (See Resources, Section 1.)

Have each student draw a picture of a favorite animal and food the animal eats.

Watch Animals Grow

Obtain a small animal to have as a class pet. Some possible choices are a young rabbit, guinea pig, gerbil, or hamster. Let the students feed and care for the animal. They can measure and chart the amount of food it eats and the amount of weight it gains. They can also look for other signs of growth, such as an increase in its body length or foot size. As an animal grows, its fur may grow longer, and it may be able to do more activities with its body.

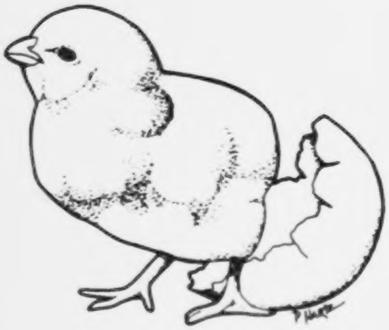
Have the students observe the hatching of chickens. Your county Cooperative Extension 4-H agents can explain the procedure and tell you where to get fertilized eggs and an incubator for the project. Many county offices have incubators available for loan. Chicken eggs take about 21 days to hatch.

The book ***The Chicken and the Egg*** by Oxford Scientific Films (see Resources, Section 1) contains excellent color photographs that show the development of chickens, from embryo to hen.

The students can compare how the chicks look when first hatched and a few days later. What changes were observed? Changes include the appearance of feathers, growth in size, and ability to walk. Over the next two weeks, the students can chart the amount of food the chicks eat and the weight they gain. The students can also draw pictures showing the changes in growth.

Variations

If you are unable to obtain a class pet, plan a trip to a farm, zoo, or pet store where the students can see adult animals with their young. Students can observe how young animals change as they grow and the foods they eat. When they return to class students can dictate a story about their observations of animal growth. They could draw pictures, creating a wall mural to illustrate the story.



A student with a new puppy or kitten might bring the animal to class once a week for a few weeks. The students can observe how the animal changes as it grows. Encourage students to think about how the animals will continue to change as they grow older.

Additional Activities

- Have students bring pets or pictures of pets to class. Ask them to explain what foods their pets eat to stay healthy.
- Refer to Chapter 1, "Animal Needs," in ***Addison-Wesley Science*, Level 1** (see Resources, Section 1) or to a similar section in another text for additional information and activities about growth.

Exploring Plant Growth

Advance Preparation

Collect

Paper cups or small milk cartons and markers for names, 1 per child.

Packet of radish seeds.

Potting soil.

Waterproof trays to hold the potted seeds.

Food for Plants

Explain that plants are living because they grow. As they grow they move toward light. To grow, plants need special substances that provide them with food. Ask the students to name the elements they think are important for plant growth. Answers should include soil, water, light, and air. List them on the board.

Grow Radishes

Give each student a paper cup or milk carton, a marker, two radish seeds, and potting soil. Have students punch a few small pencil holes in the bottom of the container for drainage.

Students will fill the containers with soil, add the seeds, and cover them with one-fourth inch of soil. Students should push the soil down firmly and add water. Have the students place their cups on waterproof trays near a window with bright sunlight. As the soil dries out, the seeds will need small amounts of water. Radishes will germinate in 3 to 10 days and should mature in 20 to 25 days. Discuss and compare the growth of the plants.

—What did the seeds need as "food" to grow? (Soil, water, light, air.)

—When did plants first appear from the seeds?

—Measure and graph the plants' growth every two or three days.

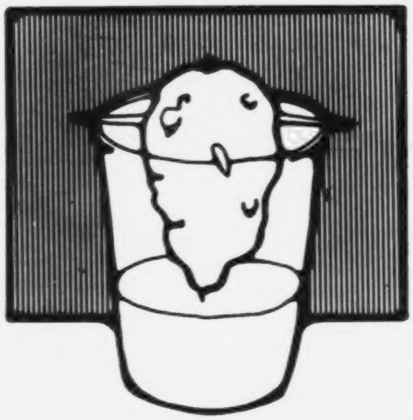
—When did the plants grow fastest?

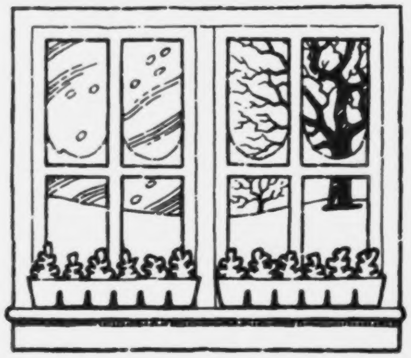
—Did all plants grow to the same size?

Reinforce the idea that living things may vary somewhat in their growth. Even under good growing conditions some plants will grow larger than others. Radish plants grown inside may or may not produce radishes large enough to pick and eat.

Limit Growth

As an additional experiment to highlight substances essential for good plant growth, have the students try to grow seeds under less than ideal conditions. Students can try to grow some seeds without light, some without water, and some without soil. Seeds without soil may be started on a damp sponge or in pebbles. Help students see that light, water, and soil are all important for plants to grow. For a further discussion of such an experiment refer to Chapter 2, "Plant Needs," in ***Addison-Wesley Science*, Level 1** (see Resources, Section 1) or a similar text.





Additional Activities

- Sprout seeds. Although plants will not usually grow well without the substances supplied by soil, many seeds can use the food stored within them to sprout roots when they are kept damp. Sprouted seeds can then be planted in soil, eaten, or discarded. Have students place alfalfa or mung bean seeds (available from garden stores, seed catalogs, or bulk grocery stores) on a wet sponge that is partially submerged in water. The seeds will sprout when moistened.
- Sprout a sweet potato by partially submerging its narrow end in a glass of water. Use toothpicks to hold the potato in place. The potato will sprout when placed near light. An avocado seed can be sprouted in the same way.
- Grow other plants. Have the students bring in, compare, and plant seeds from foods they have eaten. Examples include seeds from apples, watermelon, green peppers, and tomatoes. Not all of the seeds will grow. Some of them may be immature; others may not have the proper growing conditions.
- Read the book ***Seeds and More Seeds*** by M. E. Selsam (see Resources, Section 1).

I'm Growing Too

Advance Preparation

Bring

One or two pieces of newsprint for a growth chart.

The Munch puppet.

Butcher paper for a growth graph to cover most of a classroom wall.

Measuring tape or yardstick.

The scale from the nurse's office.

Name	September	December	March	June
John Adams	60 pounds 50 inches			
Maria Perez				

Growing Bodies

Use Munch to discuss growth with the class.

Have Munch ask:

—How can you tell you are growing? (Getting taller; weigh more; hair, fingernails, and toenails longer; new teeth; getting stronger and able to do more things; cuts heal; body parts such as feet or hands get larger.)

—What helps you grow? (Food.)

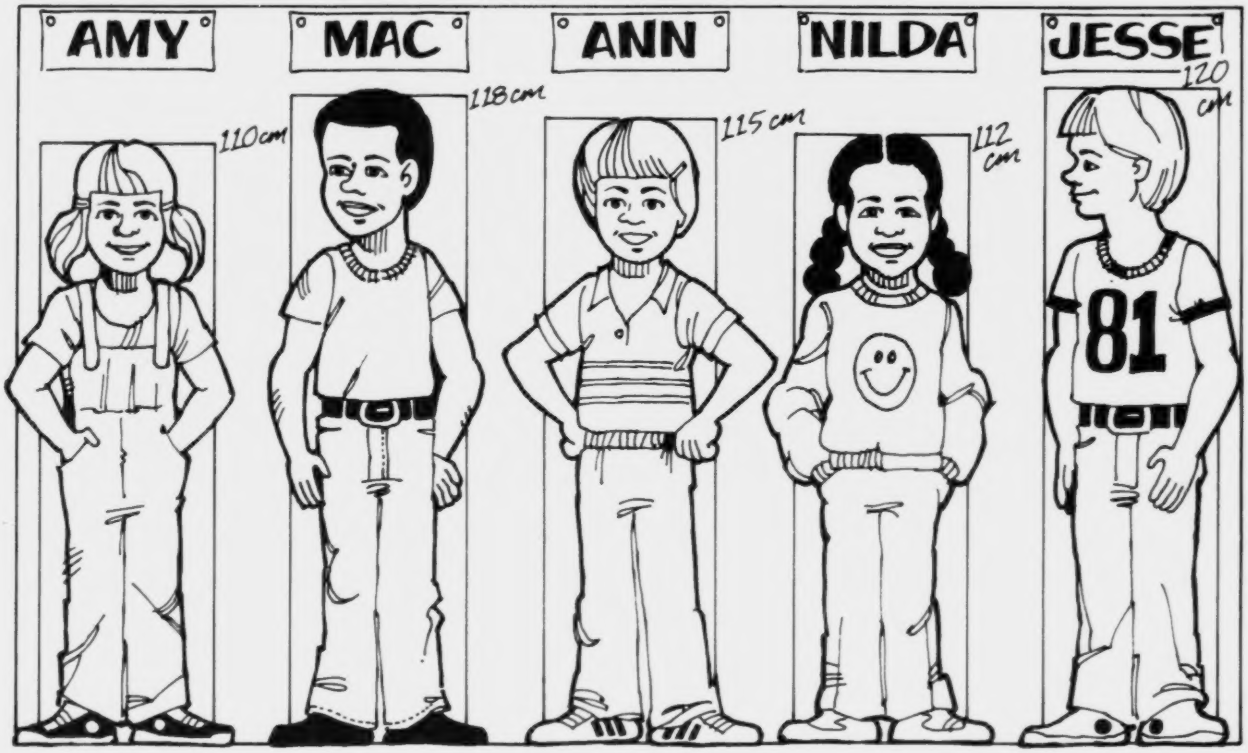
Have Munch explain that we grow different amounts at different times. Some people grow taller than other people partly because their parents or relatives are tall. Eating good foods each day will help people grow as tall as they are supposed to but will not make everyone the same height. Reassure students that different heights and rates of growth are normal.

Chart Growth

Help the students weigh and measure themselves. On a large piece of newsprint make a class chart with spaces for each child to record height and weight. Or ask the school nurse to help the students plot their growth on individual standardized growth charts. Record measurements every two or three months. Discuss changes that occur.

The Human Growth Graph

Cover most of a classroom wall with horizontal lengths of butcher paper. Make sure that the paper extends higher than the tallest student and is long enough for all students to stand beside it. Have the students line up next to the paper and mark each others' heights. They can create a classroom bar graph by painting or drawing vertical bars to represent their heights. Try to leave enough room between bars so that students can add their names and drawings of themselves. After measuring, discuss the graph.



Questions for conversation:

—What students are the same height?

—Do those students also have the same weight? hair length? hand size? (Probably not, because different body parts grow at different rates.)

—What is the difference in inches or centimeters between the tallest and shortest students?

Emphasize that differences in size and growth are normal. Tall people may grow at a different rate than short people. It is important to respect individual variations in growth and to emphasize the importance of good health for everyone, no matter what size.

Have students draw or cut from magazines pictures of foods that helped them grow and add the pictures to the graph. Many different foods supply essential nutrients for growth. At this point students are not expected to grasp the concept of essential nutrients or which foods contain them. Instead, it is enough for students to select pictures of a wide variety of foods. Later, in Section 3, calcium and protein, two of the nutrients especially important for growth, will be emphasized.

In three or four months students can remeasure themselves and add any growth to the graph. How much did each individual grow during the interval between measurements? How much did the class as a whole grow?

Activity 7

Language Arts

Recording personal growth and its relationship to food

Hey! That's Me!

Advance Preparation

Bring the Munch puppet.

Have students bring in photographs of themselves as babies and as older children or have them clip magazine pictures of children at different ages.

Bring 2 or 3 plastic sandwich bags for each student.

Collect magazines with pictures of food.

Growing Up

Ask the students to bring in pictures of themselves as babies as well as other pictures that were taken as they grew older. If they don't have photographs available, they could cut pictures of children from magazines to represent themselves.

Have each student select two or three pictures showing themselves or the children in the magazine pictures at different ages and write a statement about how they have changed and grown.

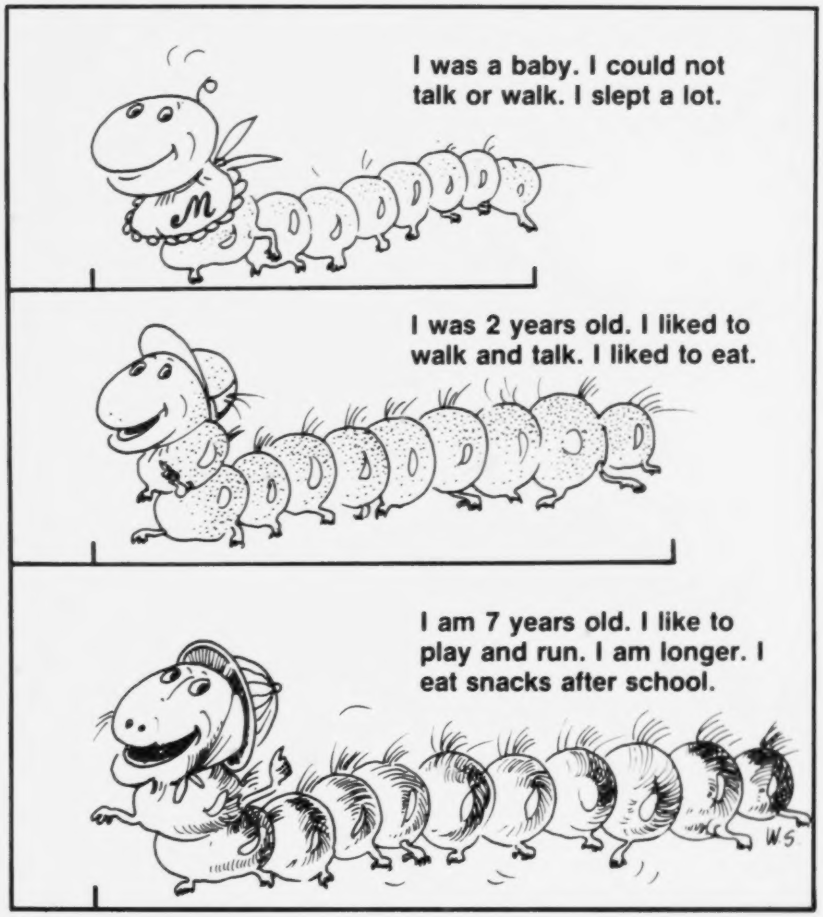
Make Scrapbooks

Staple pieces of paper together to make "books" for students.

Have the students place their pictures in protective plastic sandwich bags. They can paste and tape their bagged "growing up" pictures and accompanying statements in their books.

Then ask the students to add to their scrapbooks pictures of foods they ate when they were babies and as they grew older. They may draw pictures or cut them from magazines. Students with younger siblings can describe what babies eat. Emphasize that many foods are important for growth and that first-graders eat a much wider variety of foods than babies.

Be sure that students take their baby pictures back home when they finish their books.


I was a baby. I could not talk or walk. I slept a lot.
M
I was 2 years old. I liked to walk and talk. I liked to eat.
I am 7 years old. I like to play and run. I am longer. I eat snacks after school.
WS

Evaluation

Advance Preparation

Collect pictures of younger and older plants, animals, and people (optional).

Living Things Grow

1. Ask students to name several living and several nonliving things in the classroom. How can they tell whether something is living? (Living things grow. They also move, reproduce, and use air, food, and water.)

2. Write the names of several living and nonliving things on the chalkboard. Have students copy them and star all the living things.

What Is Growth?

1. Using pictures if possible, ask the students to answer some questions about growth. Discuss the answers.

   Examples:

   Which is taller—a young tree or an old tree? A two-year-old or a six-year-old? A six-year-old or an adult?

   Which weighs more—a baby chick or a hen? A puppy or a dog?

   Which is stronger—a young plant or an older plant? A baby or a six-year-old?

2. Ask the students to tell several ways they are growing (getting taller; gaining weight; longer hair, fingernails, and toenails; new teeth; getting stronger and able to do more things; cuts heal; body parts such as hands and feet getting larger).

Food for Growth and Energy

1. Have the students demonstrate five activities that require a lot of energy from food and five activities that do not require as much food energy.

2. Ask the students to describe breakfasts that give them good morning energy.

3. Have the students draw pictures of foods that give children energy and help them grow. Have the students draw pictures of animals and the foods they eat for growth and energy.

. . . is it living ?
. . . . non-living ?
caw

Section 2

Let's Go Exploring

Exploring in a Food Jungle

Understanding:

Plants and animals provide us with food.

Before You Start

Research has shown that eating a wide variety of foods, including vegetables and fruits, whole grains, and low-fat dairy products and meats, is essential for health. People are most likely to eat foods they know and like. Exploring the origins of foods enables students to gain familiarity with many foods.

Hands-on activities in this section will enable students to trace foods back to their plant and animal sources. As they prepare and taste foods, complete projects and work sheets, sing, and talk about foods, students will become more aware of the nutritious foods provided by plants and animals.

Activities	Subject
9. Plant or Animal?	Language Arts
10. Discovering Vegetables	Science
11. Taking the Mystery out of Fruits	Science
12. Great Grains	Language Arts
13. Beans, Beans, Beans	Math
14. Milk and More	Language Arts
15. All in a Shell	Science
16. Fish for It	Language Arts
17. Evaluation	Language Arts

Resources

Old MacDonald Had an Apartment House. J. Barrett. New York: Atheneum, 1969.

In this humorous story, Mr. MacDonald, the "super" (superintendent) of an apartment in the city, gradually turns his building into a farm, complete with growing food and animals. The situation begins to get out of hand until the owner of the building proposes a clever solution.

Stone Soup. M. Brown. New York: Charles Scribner's Sons, 1947.

When three soldiers enter a village the peasants hide all their food. Cleverly, the soldiers persuade the peasants to contribute all the ingredients needed to make a delicious "stone" soup.

My Garden Grows. A. Watson. New York: Viking Press, 1962.

The day-to-day joy of growing a garden is depicted through the eyes of a child in simple words and pictures. The changes from seeds to ready-to-eat vegetables are detailed like an adventure story.

More Potatoes. M. E. Selsam. New York: Harper & Row, 1972. "I Can Read" Book.

Sue asks a storekeeper where he gets more potatoes when he runs out of them. This question results in her whole class visiting a potato farm and a warehouse to learn how potatoes are grown and processed.

The Turnip. J. Domanska. London: Macmillan, 1969.

Grandfather plants a turnip and Grandmother waters it every day. The turnip starts to grow and grow. By the time it is ready for harvesting Grandfather and Grandmother need help.

From Apple Seed to Applesauce. H. Johnson. New York: Lothrup, Lee, and Shephard, 1977.

Photographs show the origins of applesauce, beginning with the planting of apple trees.

The Fruit Book. C. Overbeck. Minneapolis: Lerner Publishing, 1975.

Bright illustrations and simple language help children learn about many kinds of fruit.

Blueberries for Sal. R. McCloskey. New York: Viking Press, 1948.

While picking blueberries with her mother Sal has an adventure when she runs into a baby bear who also likes blueberries.

The Little Red Hen. J. Domanska. New York: Macmillan, 1973.

The little red hen goes through all the steps of baking bread, beginning with planting the wheat. At each step she asks for help from her friends, but no one wants to help until it is time to eat the bread.

Corn Is Maize. Aliki. New York: Crowell and Company, 1976.

This book shows the history of corn—how it was grown long ago and how it is grown today. The many food products that are made from corn are also illustrated.

Foods: Where Do They Come From? Marshfilm. P.O. Box 8082, Shawnee Mission, KA 66208. Phone: 800-821-3303.

Brilliant photographs in this 50-frame filmstrip illustrate the sources of various grains, vegetables, fruits, and dairy products. Wheat is shown growing, being combined, and emerging as bread.

Green Grass and White Milk. Aliki. New York: Crowell, 1974.
The production of milk—from the cow to the dairy—is shown; recipes for making yogurt and cottage cheese are included.

Milk from Cow to You (poster). National Dairy Council or local office (Appendix 1).
This oversized poster highlights the important steps in the production, processing, and delivery of milk.

We All Like Milk (study prints). National Dairy Council or local office (Appendix 1).
This portfolio contains 12 full-color photographs of baby mammals, alone or with their parents. Discussion questions and answers and activity ideas are on the back of each print.

Activity 9 **Language Arts**

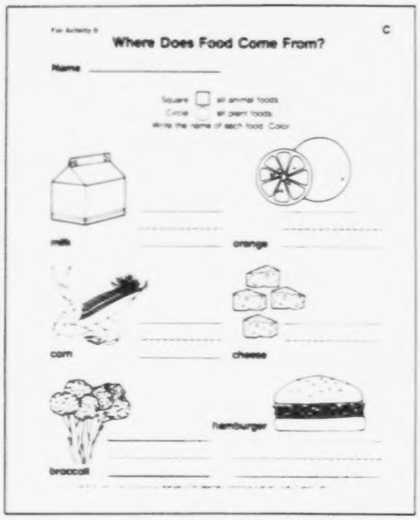
Classifying foods that come from plants and animals

Plant or Animal?

Advance Preparation

Collect Dairy Council food models or magazine pictures of foods from plant and animal sources. Have one picture for each student.

Copy work sheet C for each student.



For Activity 9

C

Where Does Food Come From?

Name ____________

Square ☐ all animal foods

Circle ○ all plant foods

Write the name of each food. Color.

A Food Treasure Hunt

Hide pictures of foods around the classroom or in a specified area outside or in the gym. Have students search until each one finds a food picture.

Make headings on the chalkboard, "Plant Foods We Eat" and "Animal Foods We Eat." Explain that all the foods we eat come from animals and plants. Ask the students to decide whether their pictures show foods from an animal or from a plant.

Go around the room and ask each student to name his/her food and to tell whether it comes from an animal or a plant. List all foods under their proper headings.

Some foods such as an apple are eaten in their original form and are fairly easy to classify. Other foods may be chopped, mixed with additional foods, and/or cooked, making them more difficult to classify. Foods such as stews, casseroles, or soups can contain both animal and plant products. Such combination foods can be classified as from both animals and plants.

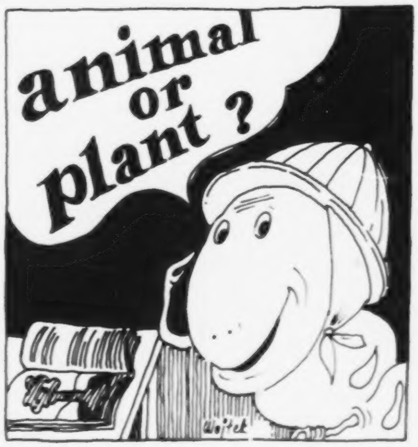
Identify the Source

Have the students complete work sheet C, "Where Does Food Come From?" Review the work sheet with them. Note that hamburger meat comes from an animal and the bun contains mostly flour from the wheat plant.

You may want to introduce the concept of a "food chain." Green plants use energy from the sun to produce food for themselves. Animals and people eat the plants to obtain food energy. Ultimately, people, plants, and animals are dependent upon the sun's energy.

Sing about Food

Sing the song "Aiken Drum," a traditional song that invites audience participation. See the song sheet on the following page. Students name foods as parts of an imaginary person called Aiken Drum. For example, the eyes are made of grapes, the mouth is a meatball, and so on. Encourage students to compose verses using only animal or only plant foods.



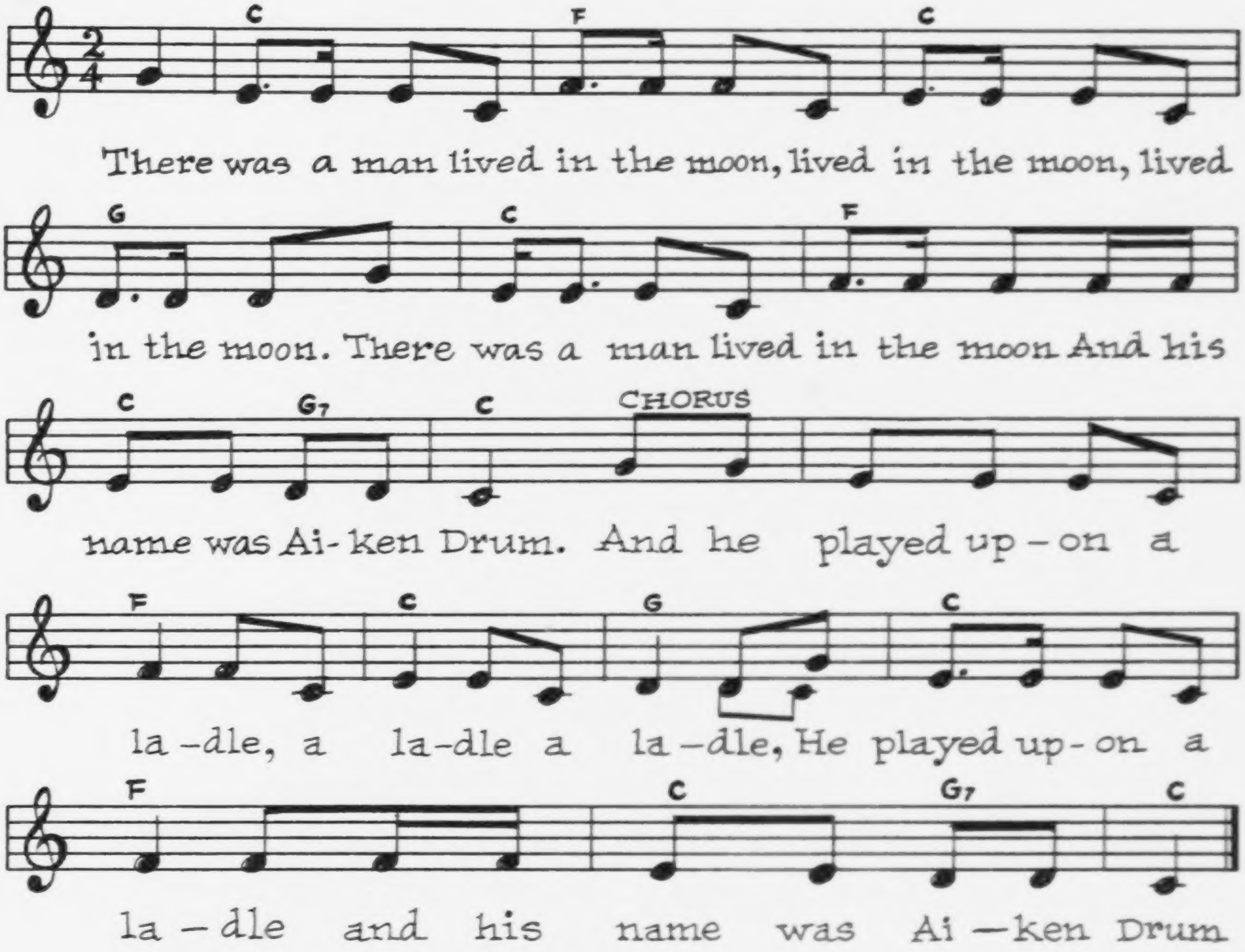
Additional Activities

- Have students draw or cut pictures from magazines of plant and animal foods that we eat. Create a bulletin board display, labeling the plant and animal foods.
- View the filmstrip ***Foods: Where Do They Come From?*** (see Resources, Section 2). With clear and attractive photographs, the filmstrip illustrates the sources of various grains, vegetables, fruits, and dairy products.
- Have students examine a weekly school lunch menu to determine whether each food came from a plant or an animal.
- Read aloud ***Old MacDonald Had an Apartment House*** by J. Barrett (see Resources, Section 2). In this humorous story, Mr. MacDonald, the "super" (superintendent) of an apartment in the city, gradually turns his building into a farm, complete with growing food and animals.

Aiken Drum

Traditional Scottish Song

An excellent audience participation song because it stimulates the imagination and is easy to learn and to sing. Ask each child to lead a new verse after first singing a few to teach the song. Encourage composing verses using nutritious foods. An interesting way to sing the song and to promote learning of new foods is to use ethnic themes.


C
F
C
There was a man lived in the moon, lived in the moon, lived
G
C
F
in the moon. There was a man lived in the moon And his
C
G7
C
CHORUS
name was Ai-ken Drum. And he played up-on a
F
C
G
C
la-dle, a la-dle a la-dle, He played up-on a
F
C
G7
C
la-dle and his name was Ai-ken Drum

And his head was made of cream cheese
Of cream cheese, of cream cheese
His head was made of cream cheese
And his name was Aiken Drum.

And his coat was made of good roast beef
Of good roast beef, of good roast beef
His coat was made of good roast beef
And his name was Aiken Drum.
And his breeches were made of haggis bags
And his name was Aiken Drum.

Final verse: And wasn't he a yummy man
And his name was Aiken Drum.

Activity 10

Science

Exploring the sources of vegetables and preparing a salad

Discovering Vegetables

Note: This activity will require that you schedule time during at least two days. Activities for each day are designated as Part A and Part B.

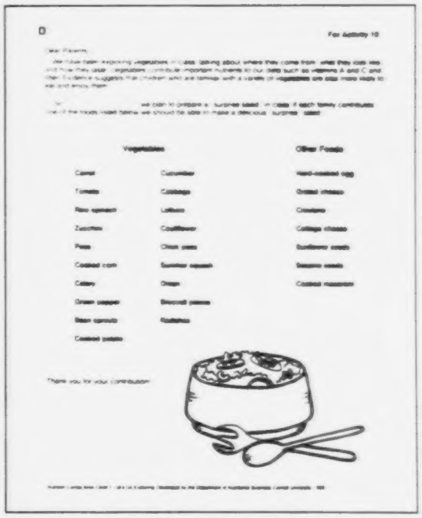
Part A: Advance Preparation

Bring the book ***Stone Soup*** by M. Brown (see Resources, Section 2).

Obtain the book ***My Garden Grows*** by A. Watson (see Resources, Section 2) or any other book that illustrates the different parts of vegetable plants.

Bring samples of carrot, broccoli, spinach, green peas, and tomato for each student to have a taste.

Copy letter D to parents for each student.



From Roots to Leaves

Pass around the vegetables so that the students can examine and discuss each one. Then cut the vegetables in small pieces for students to taste.

Questions for conversation:

—What is the vegetable's name?

—How does the vegetable look, feel, and smell?

—Have you ever eaten it?

—Could you describe how it tastes?

—Where does it come from? (A plant.)

—Have you ever seen it growing? If yes, do you know what part of a plant it comes from? (See classifications below.)

Use a book to show how the vegetables come from different parts of the plants. Other examples of vegetables that come from different plant parts include the following:

Root—carrot, beet, turnip, radish (A potato is an underground stem.)

Stem—celery, broccoli, rhubarb, asparagus

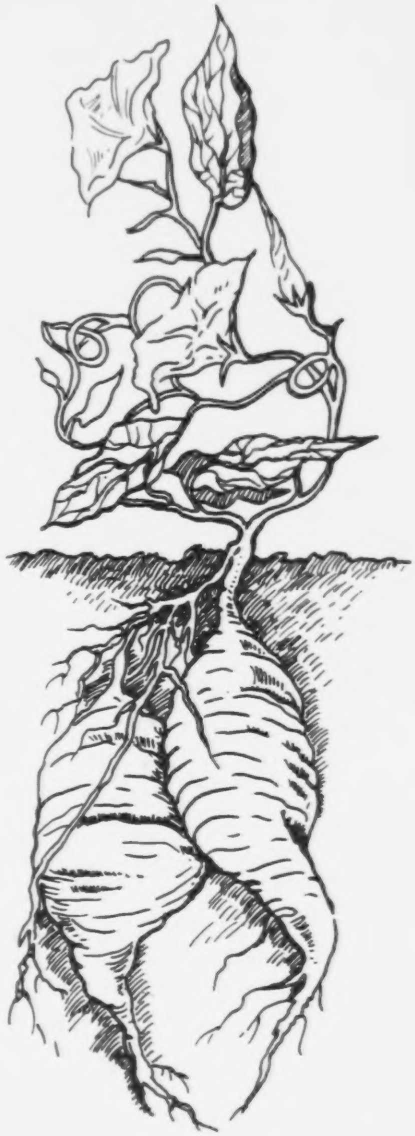
Leaf—spinach, lettuce, kale, collard, cabbage

Flower—cauliflower, broccoli, artichoke

Seed—green pea, lima bean

Fruit—tomato, green pepper, squash, eggplant, cucumber, corn, string bean

(Many vegetables are classified botanically as fruits because they contain seeds. All fruits contain seeds.)



Stone Soup

Read the story ***Stone Soup*** by M. Brown to the students (see Resources, Section 2).

Ask the students to name the ingredients the soldiers used to make soup. List them on the chalkboard. Star the vegetables. Was the stone important? Why or why not?

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Plan a Surprise Salad

Invite the class to plan a "surprise" salad. Just as the villagers contributed many different vegetables to make "stone soup," students can bring from home different vegetables to make a surprise salad.

Ask the students to name any vegetables or other foods that could be used to make a salad. List them on the chalkboard. Many possible foods are listed on the letter to parents.

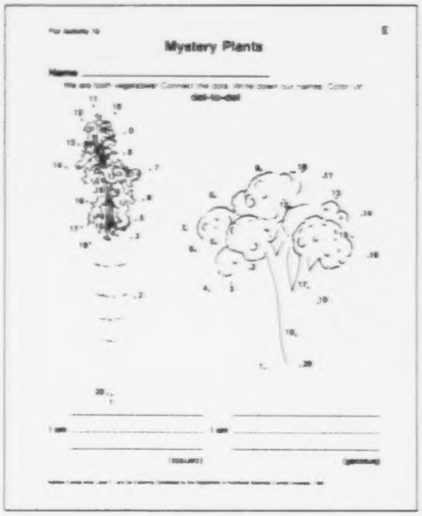
Distribute letter D to parents to the students. Review the letter with them. Explain that any foods they bring to class will be used to make the surprise salad. No one will know exactly which foods will be in the salad until they all bring in different foods.

Part B: Advance Preparation

Collect equipment to prepare and eat salad (knives, large bowl, plates, serving spoon, forks).

Bring an assortment of vegetables to add to the salad, if needed, and salad dressing.

Copy work sheet E for each student.



E

Mystery Plants

Name

I am

I am

Surprise Salad

Pass around the foods so that the students can examine them. Classify the vegetables according to the part of the plants they come from.

Divide the class into small work groups. Have each group wash and tear or chop the vegetables for the salad. Mix all the ingredients together in one large bowl. Add a small amount of salad dressing before serving.

Questions for conversation:

—What vegetables are in the salad?

—What (if any) other foods are included?

—What colors are the vegetables?

—Are they hard or soft?

—Are there any vegetables in the salad that are new to you?

—In what other ways might you eat these vegetables?

Mystery Plants

Have students complete work sheet E, "Mystery Plants." Ask whether students have ever eaten the vegetables. How were they prepared?

Additional Activities

- Read books about vegetables to the class. Some possibilities (see Resources, Section 2) include

  The Turnip by J. Domanska

  More Potatoes by M. E. Selsam

- Have students create vegetable mobiles by cutting pictures from seed catalogs or magazines and pasting them onto cardboard. Help the students punch holes and hang the pictures with string from coat hangers.

- Visit a farm or garden to observe how vegetables are grown.

- Arrange a trip to a grocery store, farm, or market to see what vegetables are available fresh, frozen, canned, or dried.

Activity 11

Exploring the sources of fruits and tasting them

Taking the Mystery out of Fruits

Advance Preparation

Bring several different fruits, allowing at least one for each group of 3 to 4 students. Include some more familiar (banana, apple, plum) and less familiar (mango, pomegranate, kiwi) fruits. Try to have enough of the fruits for each student to taste a small piece. Hide each fruit in an individual paper bag.

Bring knives (serrated plastic knives work well).

Copy work sheet F for each student.

MUNCH's Fantasy Food Jungle

Compare and Share

Divide the class into several small groups and appoint group leaders. Give each group a bagged "mystery food."

The leader should allow each group member to reach inside and feel the "mystery food," then try to describe and identify it. What shape is it? What texture? Is it heavy or light? What do they think it is? When all groups have guessed what is in their bags, they should remove the foods and look at them. Were they correct? You may need to supply the names of unfamiliar foods. But do not refer to them as "fruit" yet.

Now ask the groups to explore their foods thoroughly. Have them examine the outside of the food and cut it open to examine the inside. Members of each group will report their findings to the rest of the class. List the following questions on the chalkboard to help guide their explorations:

—What is the food's name?

—What color is the outside?

—How does it feel? and smell?

—Is the skin thick or thin?

—Could you eat the skin?

—What color is the inside of the food?

—How does it feel? and smell?

—Is it juicy or dry?

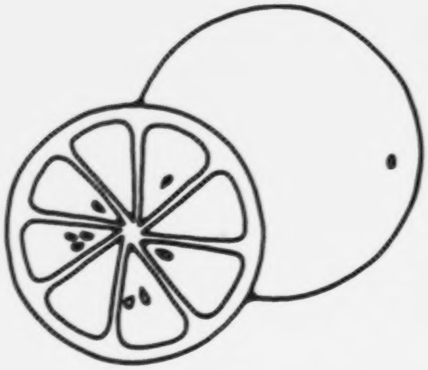
—Could you eat the inside?

—Does it have seeds?

—How many seeds are there?

—What do they look like?

—Could you eat the seeds?



—Draw a picture showing how your food looks from the outside and from the inside.

If there is enough food, the groups should cut small pieces for everyone to taste. When all groups have finished the assignment, have each group give a report on its food. After each report, the students can taste the fruit.

After all reports are completed, ask the students to name characteristics that are the same and that are different about the foods. List comments on the chalkboard. Answers might include:

Same	Different
All are fruits	Colors
All can be eaten	Shapes
All have seeds	Textures
All have skins	Some skins can be eaten; others cannot
All come from plants	Some seeds can be eaten; others cannot
	Many or few seeds
	Large or small seeds

Emphasize that all of the foods are fruits. Fruits come from plants. They all contain seeds and fleshy parts. Sometimes we eat the seeds, and sometimes we remove them. Many "vegetables," including tomato, pepper, pumpkin, and squash, are classified botanically as fruits because they contain seeds. Encourage the students to name other familiar fruits.

A Jungle Fantasy

Help the students complete work sheet F, "Munch's Fantasy Jungle." Because the illustration is a "fantasy," the foods are not drawn to scale, nor are they all placed as they actually grow. The foods include both fruits and vegetables. Review with the class any foods that are unfamiliar or hard to identify.

Additional Activities

- Have the students squeeze oranges to make fresh orange juice. Let them compare the taste of real orange juice with orange-flavored drinks. Explain that the juice is better for them than the drink because it contains more vitamins and less sugar.

- Compare and contrast dried and fresh fruits. Make dried apples by stringing together fresh apple pieces and hanging them by a window for about a week.

- Read aloud any of the following books about fruits (see Resources, Section 2):

  From Apple Seed to Applesauce by H. Johnson

  The Fruit Book by C. Overbeck

  Blueberries for Sal by R. McCloskey

- Visit a fruit orchard or vineyard to observe how fruit is grown. Visit a farmer's market, fruit stand, or grocery store to examine the many different kinds of fruits for sale.

- Have the students use papier mâché or clay to create models of different fruits. Have a "fruit parade" to display the models to students in other classrooms.

Great Grains

Advance Preparation

Bring

The Munch puppet.

The Little Red Hen by J. Domanska (see Resources, Section 2) or by another author.

A slice of bread, a piece of spaghetti, a noodle, and some cereal made from wheat.

A stalk of wheat from a farmer or florist and a small amount of flour.

A Common Seed

Display the flour and the foods listed above. Have Munch ask the class what the four foods have in common. Students may offer a variety of ideas—all are starchy foods, good foods, healthy foods, or the same color. Munch may need to give clues to help them recognize that all four foods are made from flour.

Have Munch show the class a stalk of wheat or a picture of wheat. Can anyone identify it? Most students are probably not familiar with wheat plants. What does the wheat have to do with the flour? Munch can explain that the flour used to make the four foods came from the seeds of the wheat plant. The seeds are harvested by a combine, which separates the grains (seeds) from the straw. Then the seeds are milled or ground into flour.

Can the students name any other foods that are made from wheat flour? Answers may include pizza crust, macaroni, hamburger bun, bread, and cereal.

From Seed to Bread

Read ***The Little Red Hen*** to illustrate how wheat is grown and made into bread.

After reading the story, review the steps the hen followed to make bread.

Write each step on a separate strip of paper. Depending on which version of the book is used, steps might be as follows:

1. The hen planted a grain of wheat.
2. The wheat grain grew up yellow and ripe.
3. The hen cut the wheat and threshed it.
4. The hen took the wheat to the mill to be ground into flour.
5. The hen made bread with the flour.
6. The hen and her chicks ate the bread.

Pass the strips of paper to different students. Have them line up so that the strips tell the story in the proper sequence.

Have the students draw pictures to show the steps the hen followed.

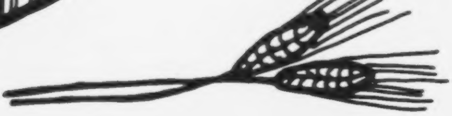
Other Grains

Have Munch explain that corn, oats, barley, rice, rye, and millet are other types of grain plants. Seeds from these plants are used to make many different foods. Wheat is a major grain in the United States, and corn or rice are the major grains in other countries.

If possible collect samples of several grains along with pictures of the grains growing and foods that are made from the grains.

Additional Activities

- Have the students make a food that comes from corn, such as popcorn or cornbread. Or have the students make a food that comes from wheat, such as whole-wheat pancakes.
- Arrange for the class to visit a bakery. Encourage the students to observe the many types of bread and baked goods made in the bakery.
- Have students ask their parents and grandparents about the products made from grains that they ate as children. Discuss how the foods are different from or similar to foods available today.
- Invite a parent or community member to make traditional bread with the class. Encourage the making of whole-grain breads such as whole wheat, rye, or pumpernickel.



Beans, Beans, Beans

Advance Preparation

Bring samples of 5 or 6 different dried beans, peas, and lentils to class. Examples might include chick peas, pinto beans, kidney beans, soybeans, mung beans, lentils, split peas, and peanuts. Place samples of each legume in small labeled jars or plastic bags.

Bring ingredients and equipment to prepare and serve refried beans or bean salad.

Identifying Beans

Give each student samples of two or three different beans, peas, or lentils, a piece of construction paper, and glue. Pass around the labeled containers. Students can identify their samples by comparing them with those in the containers. Students should glue the samples to the paper and label them.

Questions for conversation:

—What is the same about all of the beans, peas, and lentils? (Hard, dry, seeds of plants.)

—What are differences among them? (Color, shapes, sizes, come from different plants.)

—Can you name any other dry beans or peas?

—What foods do people make using beans, peas, or lentils? Examples:

Bean salad—might include any combination of beans

Humus—a spicy mixture of chick peas and sesame seed paste

Soy burgers—soybeans mashed and cooked, alone or with ground meat

Bean sprouts—eaten raw in salads, cooked in Chinese dishes

Tofu—soybean "curd," common in Chinese dishes

Chili—a mixture of kidney beans, tomatoes, ground beef, and chili pepper

Burrito—tortillas filled with beans and cheese

Beans with rice

Pea or lentil soup

Baked beans

Peanut butter

Point out that dried beans, peas, and lentils are called legumes. They are all seeds of plants, and they grow in pods. Have students discuss any foods they have eaten that are made with legumes and describe them for students who have not eaten them. Students can also draw pictures of any familiar foods that are made with legumes.

Counting Beans

Dry beans make excellent "counters" to illustrate math concepts and help solve problems.

- Sort beans into categories or sets by such characteristics as variety, color, or size and determine which sets contain more beans.

dried beans

- Use beans to practice addition or subtraction.
- Divide heaps of beans into roughly equal halves, thirds, or quarters.
- Create patterns with different varieties of beans.

Cook Beans

Refried Beans
(makes 16 servings)

Refried beans are a favorite dish of many Puerto Rican and Mexican families.

Ingredients	Equipment
1 16-ounce can refried beans	Can opener
¼ pound cheddar cheese, grated	Electric frying pan
Head of lettuce, ripped in pieces or Loaf of bread, cut in small pieces	Large spoon or grater

1. Heat beans over low heat. Top with grated cheese.
2. Serve on lettuce leaves or bread.

Bean Salad

(makes 24 ¼-cup servings)

Variations of bean salad are common at summer picnics.

Ingredients

¼ cup oil
½ cup cider vinegar
1 teaspoon sugar (optional)
1 16-oz. can kidney beans
1 16-oz. can chick peas
1 16-oz. can green beans
1 medium onion, chopped
1 cup celery, chopped

Equipment

Large bowl
Large spoon
Knife
Can opener
Measuring cup
Teaspoon
Eating utensils

1. Mix together oil, vinegar, and sugar.
2. Drain beans.
3. Add beans, onion, and celery to vinegar mixture. Mix gently.
4. Refrigerate for at least 1 hour before serving.

Additional Activity

- Grow bean sprouts. Soak ½ cup of dry mung beans overnight in a jar half full of cold water. Drain them and place them in a dark, warm place. Rinse the beans and drain them two or three times each day. They will be ready to eat in a few days.

Milk and More

Advance Preparation

Obtain one or more of the following (see Resources, Section 2):

"Milk from Cow to You," a Dairy Council poster.

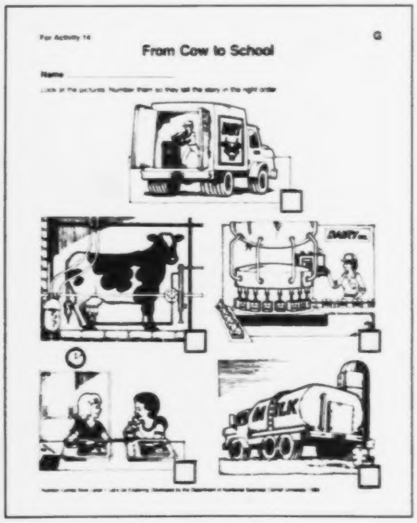
Green Grass and White Milk, a book by Aliki.

Any other book that describes milk production and processing.

Copy work sheet G for each student.

Collect pictures of different foods, including dairy products.

Bring ingredients and equipment for yogurt fruit cups.



For Activity 14

G

From Cow to School

Name

The Story of Cow's Milk

Ask the class if anyone knows where cow's milk comes from. Students who live on or near a dairy farm may be able to explain milk production.

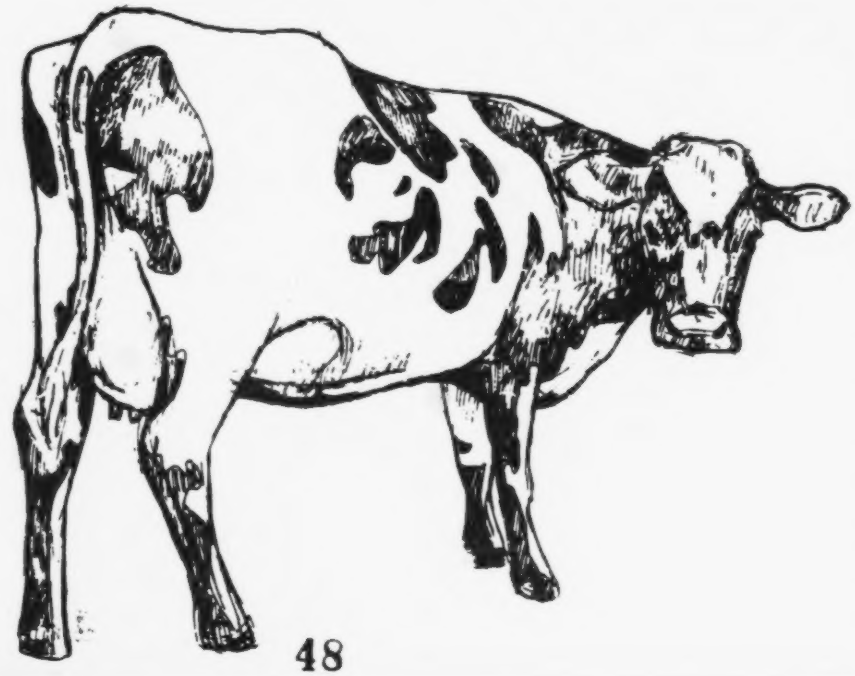
Display the poster and/or read the story. Point out various steps in the production of milk.

1. Cows eat grass and grain that give them energy and nutrients to make milk in their bodies.
2. Dairy farmers milk their cows at least twice each day. Milk is collected and cooled to keep it fresh.
3. Tank trucks carry the milk from the farm to the dairy plant, where it is checked and pasteurized to kill any germs.
4. At the dairy plant, machines put milk into containers.
5. Trucks carry milk to stores, schools, and restaurants where you can buy it.

Interesting Facts about Cows

- A cow eats about 40 pounds of dry food each day, which is a little less than the weight of a first grader.
- A cow drinks about 40 gallons of water each day, as much as if every student in a class of 25 students were to drink more than 25 glasses in one day.
- A cow can produce about 80 glasses of milk daily, enough milk for everyone in the class to have a little more than 3 glasses.

Ask the students whether they can name any other animals whose milk is used by people. Examples of animals that are milked by people include goats, sheep, horses, zebras, water buffaloes, camels, and reindeer.



From Cow to School

Distribute work sheet G, "From Cow to School." Discuss the pictures to make sure that the students understand what each one represents. Instruct the students to number the pictures so they show how milk gets from the cow to school. Students can also color their work sheets before taking them home.

What Doesn't Belong?

Use a variety of pictures of foods and/or cardboard food models from the Dairy Council to illustrate foods that are made from milk. Try to include pictures of milk, cheese, yogurt, pudding, and ice cream. Point out that many combination foods such as macaroni and cheese or creamed soup contain dairy foods.

Line up four pictures of foods where the students can see them. Three pictures should be of dairy products and one should be of a nondairy food such as fruit or cereal. Have the students pick out the picture that doesn't belong.

After the students understand how to play, they can create similar problems for classmates to solve. Students can also practice separating pictures of dairy foods from other foods.

Yogurt Fruit Cups

Create yogurt fruit cups using plain low-fat yogurt, fruits, and dry cereals. Students can start with a small cup of plain yogurt and add toppings.

Ingredients	Equipment
24 ounces plain low-fat yogurt	Bowls for yogurt and toppings
Several fruits, chopped Bananas Peaches Strawberries Blueberries	Serving spoons
Dry unsweetened cereals	Small cups and spoons

Additional Activities

- Have a milk-tasting party with whole, skim, 2 percent, 1 percent, evaporated, and dry skim milks. Discuss how the different milks are used. Point out that the skim and low-fat milks provide the same amounts of protein and calcium but contain less fat than whole milk.
- Obtain the study prints **We All Like Milk** from the Dairy Council (see Resources, Section 2). Discuss the many baby animals that drink milk as their first food.
- Arrange a class trip to a dairy farm, milk processing plant, or bottling facility.
- Visit a grocery store where students can observe the many dairy products available.
- Make a chart to illustrate the different cheeses that students have tasted. You might arrange a cheese-tasting party.

All in a Shell

Advance Preparation

Bring

5 or 6 eggs.

Equipment to hard cook and eat eggs.

"Eggsamination"

Pass an uncooked egg around the class for each student to examine carefully.

Questions for conversation:

—What is it?

—Where does it come from?

—What shape is it?

—What is the outside of the egg called?

—Can you describe how it feels?

—What are some different ways that you might eat it?

—Can you name any other animals that lay eggs that people eat? (Ducks, quail, and geese.)

Explain that female chickens, called laying hens, are raised just to lay eggs. They lay one egg each day for 4 to 7 days, skip a day, and then repeat the process. A farmer collects the eggs, washes them, packs them in boxes, and sends them to be distributed in stores.

Note: Students may want to know why the eggs do not hatch into chickens. You may explain that only fertile eggs that are kept very warm can hatch into baby chicks. Activity 4 in Section 1 provides an opportunity to hatch baby chicks.

Crack an egg into a saucer and pass it around for examination. Encourage the students to touch it gently.

Questions for conversation:

—What are the parts of the egg called? (White, yolk.)

—What colors are they before they are cooked?

—What shape are they?

—How do they feel?

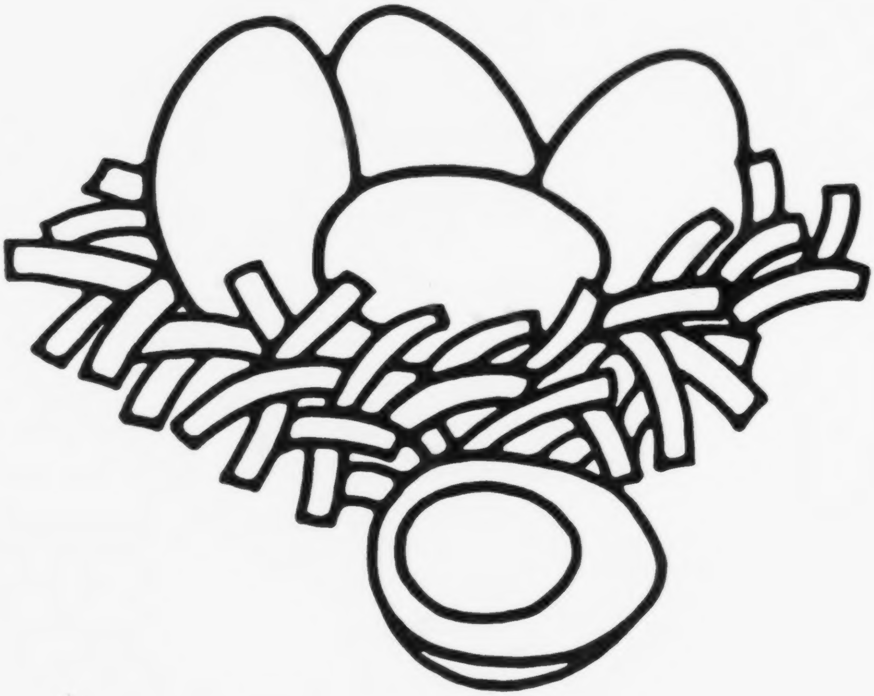
After students have examined an egg they can draw pictures of the inside and outside, labeling the shell, yolk, and white.

Cook Eggs—Fast and Easy

Cook 4 or 5 eggs as follows:

1. Place eggs in a saucepan and cover with cool water.
2. Bring the water to a boil, turn down heat, and gently simmer (do not boil) eggs for 15 minutes.
3. Cool promptly with cold water. This cooking method helps prevent harmless green-colored iron sulfide from forming on the yolks.

Have several students crack, peel, and slice the cooked eggs. Give each student a small piece of egg to taste. Discuss the changes in the eggs that occurred during cooking. (The yolks and whites solidified; the whites changed from clear to white.)



Eggs around the World

Eggs are an inexpensive and widely available food that can be prepared in many different ways. With the students, identify some traditional ethnic foods that are made from eggs. A few examples might include:

France: quiche, omelette, crepes

Britain/Scotland: yorkshire pudding, custard

Puerto Rico: flan, fritata

Mexico: huevos rancheros

China: egg foo young

Have students who are familiar with the different foods describe them to the rest of the class. Write the names of the foods on small labels. Attach the labels to a world map to illustrate the country or region with which they are associated.

If possible invite a parent or community member to bring in a traditional ethnic food made with eggs so that all the students may examine and taste it.

Cholesterol—Caution

Although eggs contain protein and other nutrients important for health and growth, egg yolks are very high in cholesterol. Cholesterol is a fatty, waxy material needed for health. The body makes its own supply of cholesterol, however, and does not need additional dietary cholesterol. Many scientists believe that too much fat and cholesterol in the diet can contribute to heart disease. Current guidelines recommend limiting intakes of fat and cholesterol. It is possible to do this by limiting consumption of eggs and by selecting low-fat dairy products and leaner cuts of fish, poultry, and meat.

Additional Activities

- Arrange for the class to visit an egg farm or processing plant.

Activity 16

Identifying the sources of meat, fish, and poultry

Fish for It

Advance Preparation

Obtain a picture of a chicken.

Collect Dairy Council food models and/or magazine pictures of fish, poultry, and meats. (If you use magazine pictures, cover them with clear contact paper for protection.)

Bring paper clips, a magnet, a 3-foot piece of string, a yardstick, and clear tape.

Legs and Wings?

Ask the students to raise their hands if they eat chicken. Then ask each one which part of a chicken he or she likes the best. Use a picture of a chicken to point out the different parts. Explain that many parts of animals are used for meat.

Catch and Keep

Distribute the food models or pictures. Review the pictures with the students. Have students tape paper clips to the backs of the pictures. Make a fishing pole by tying the magnet to the string and the string to the yardstick.

Collect all the pictures and place them face down on the floor. Have the students take turns fishing. As they catch a food they must decide if it is fish, poultry, or meat.

After all the foods are caught and identified, review them with the class. Point out that fish, poultry, and meat come from different animals. Fish comes from many different fresh or saltwater fish or shellfish. Ask what kinds of fish the students eat. Varieties might include trout, smelt, salmon, perch, haddock, tuna, or cod. Sometimes fish such as cod are dried, and fish such as tuna are canned, so that they can be stored a long time without refrigeration. Frozen fish sticks are usually made from cod or haddock. Shellfish include lobster, clams, shrimp, and mussels. Ask whether any of the students ever caught a fish. What kind? Where?

Poultry comes from birds such as chickens or turkeys. Ask if any students raise their own poultry. What other food comes from chickens? (Eggs.)

Meat comes from such animals as beef cows, pigs, and sheep that are raised on farms. Sometimes people hunt animals such as deer. Meat from a deer is called venison.

Mystery Riddles

Encourage students to make up riddles describing themselves as meat, poultry, or fish. Other students can try to guess the identity.

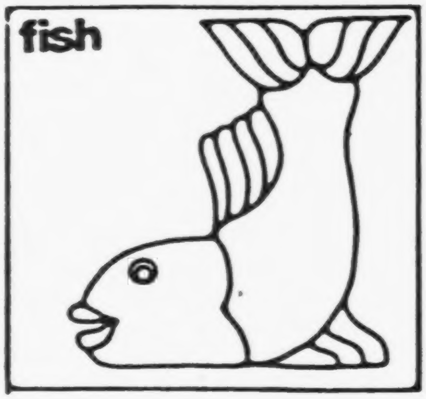
Examples:

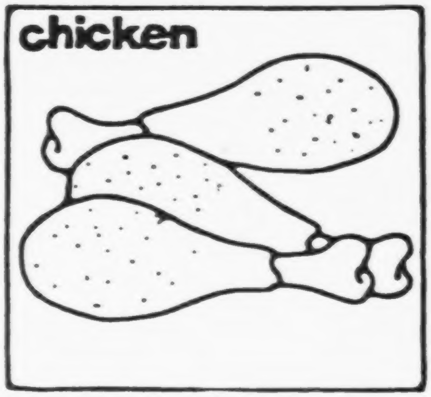
I am a large bird.
Many people stuff and eat me for
Thanksgiving dinner.
What am I?
(Turkey)

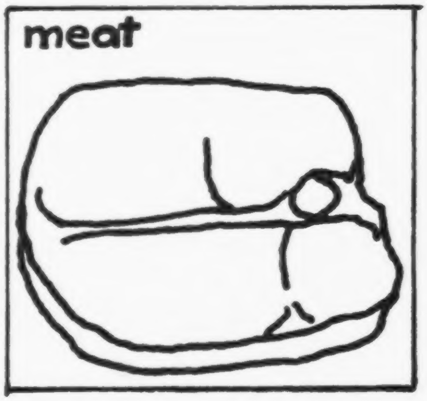
I am round and flat and I fit in a bun.
You could cook me outside on a grill.
What am I?
(Hamburger)

Additional Activities

- Invite a person who raises meat animals, poultry, or fish to speak to the class. Have the producer explain what the animals eat and how long it takes them to grow.
- Read cafeteria menus to identify fish, poultry, and meat products.
- Arrange a visit to a market to see what types of fish, poultry, and meat are available.



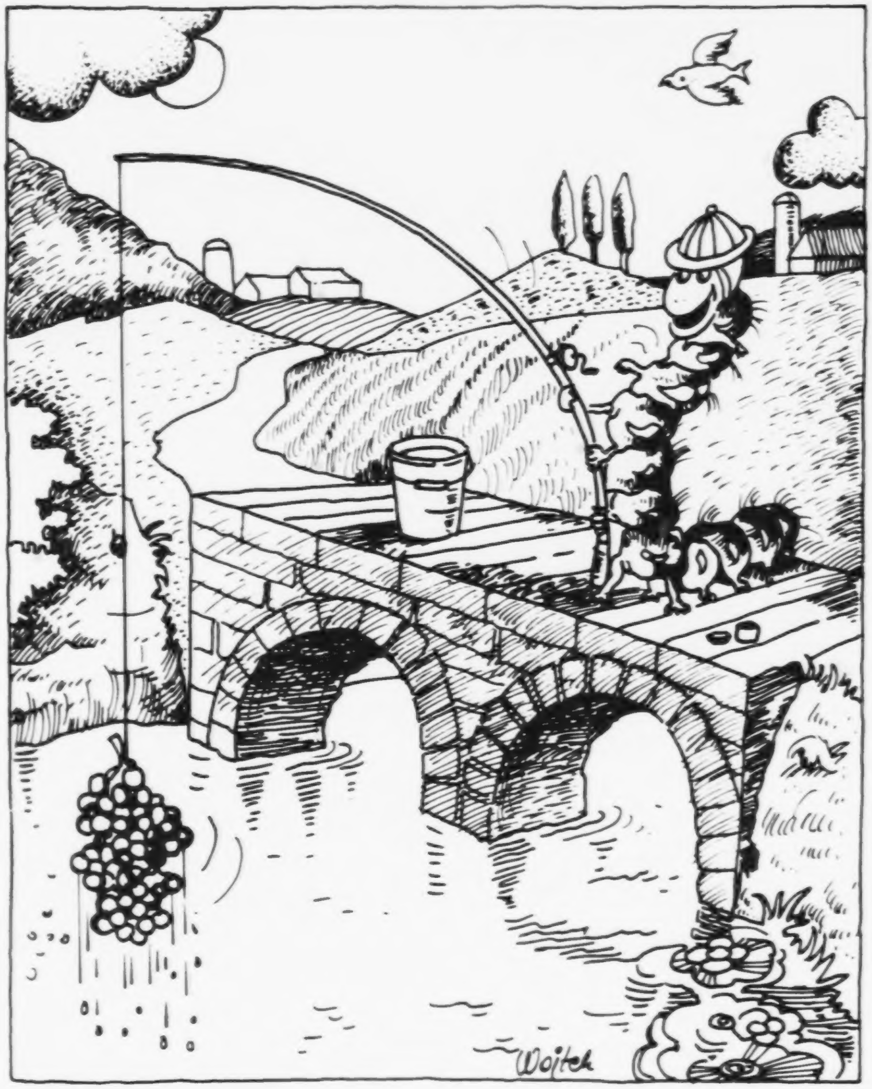




Evaluation

Advance Preparation

Bring pictures of foods that come from animals and from plants.



Animals or Plant?

1. Have the students categorize an assortment of food pictures as food from animals or from plants.
2. Ask the students to sing "Aiken Drum" using only animal, then only plant foods.
3. Play store with food pictures or wrappers. Ask each student to "buy" two foods from animals and two foods from plants.

What's Wrong with the Poem?

Read the following poem to the class. Have the students identify the incorrect statements. Can they describe where the foods listed really come from?

Exploring with Munch

by Susan K. Nelson

Munch and I
went exploring in a jungle,
to find some fresh food
so our stomachs wouldn't rumble!

We took our poles
to fish in the lake,
where Munch caught some grapes
and I, chocolate cake!

Next we decided
we wanted some meat,
so we plucked up a pig
growing under our feet!

"Hey, there," said Munch,
"Now let's make some bread!"
So we pulled down some wheat
hanging just overhead!

And after a while,
we had such a great thirst
that I drank a cherry
and Munch milked a perch!

We were finally full
and ready to leave.
Tell me, how much of this story
do you really believe?

What's wrong with this poem?

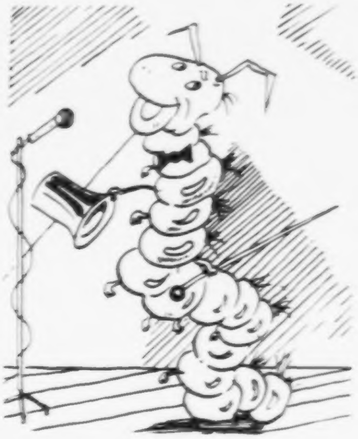
Section 3

Let's Go Exploring

Food for Growing Explorers

Understanding:

Certain foods are especially important for children's growth.



Before You Start

Growth depends not just on food but on specific nutrients within food. Calcium and protein are two of the nutrients that are especially important for children's growth. Research studies show that most Americans consume adequate, even excessive, amounts of protein, but many do not obtain the recommended amounts of calcium. Learning about these nutrients and the foods that contain them will help students develop nutritious eating patterns.

Through activities in this section students will learn about the importance of calcium and protein and what foods contain them. At this point students do not need a full understanding of the concept of nutrients. It is enough for them to understand that certain foods contain specific nutrients necessary for growth. In later levels of *Nutrition Comes Alive* students will explore a wider range of food nutrients.

Activities	Subject
18. Nutrients for Growth	Science, Language Arts
19. Calcium Helps Me Grow	Science
20. What Foods Contain Calcium?	Math
21. Protein Helps Me Grow	Science, Health, Fitness
22. What Foods Contain Protein?	Language Arts
23. Evaluation	

Resources

Your Living Bones. L. G. McNamara and A. B. Litchfield. Boston: Little, Brown, 1973.
A clear, concise text and interesting illustrations help children learn all about their bones.

The Human Body: The Muscles. K. Elgin. New York: Franklin Watts, 1973.
This book provides information about different muscles in the body and how they work.

Activity 18

Science, Language Arts

Understanding that foods contain different nutrients

Nutrients for Growth

Advance Preparation

Bring

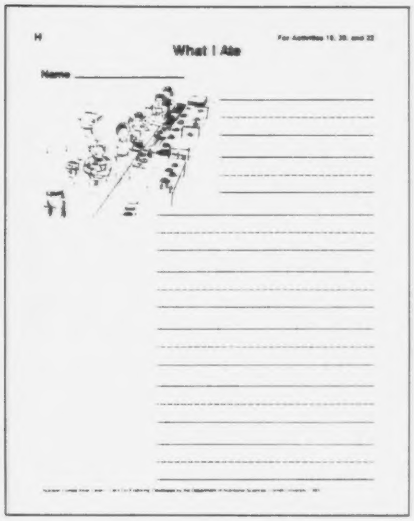
The Munch puppet.

A clear glass, 2 tablespoons of sugar or salt, and a spoon.

A set of interlocking building blocks such as Lego.

A loaf of bread or a similar food, preferably one students have prepared before.

Copy work sheet H.



H

For Activities 18, 20, and 22

What I Ate

Name ____________

Hidden Nutrients

Have Munch explain that foods contain invisible nutrients that help our bodies grow and have energy for working and playing.

Have one student fill a clear glass with water. Have another student dissolve two tablespoons of sugar or salt in the water by stirring. Ask the students if they can see the sugar or salt. Munch can explain that the sugar or salt is like the nutrients in food. Even though we can't see the nutrients, they are there.

Display a loaf of bread or a similar food. Ask the students what ingredients were used to make it. Responses may include flour, yeast, milk, water, eggs, salt, and sugar. Can students still see any of the individual ingredients? Although the individual ingredients are no longer visible, they are part of the bread just as many nutrients are in different foods.

It took scientists many years to find out about food nutrients. Scientists are professional "explorers" whose research proves that foods contain many nutrients that people and animals need to grow and stay healthy.

Nutrients as Building Blocks

Use a building block set such as Lego to show that many different food nutrients are important for health and growth. Ask the students to build Lego "people" pretending that each block is a different food with important nutrients. Many blocks are needed to build Lego people just as many food nutrients are needed to build real healthy people. Because different foods contain different kinds and amounts of nutrients, we should eat a variety of foods each day to get all the nutrients we need.

Ask the students to name different foods that are important for health and growth. List the foods on the chalkboard as they are named.

PROTEIN
Calcium
Wolfeb

Encourage students to name many different foods, including those "explored" in Section 2.

Calcium and Protein

Have Munch explain that calcium and protein are two nutrients that are especially important for children's growth. Foods with calcium and protein help bones, teeth, and muscles grow strong and healthy. In the following activities students will be looking more closely at calcium and protein and at foods high in these nutrients. To begin, students will complete work sheet H, "What I Ate."

Give each student a copy of work sheet H. Ask them to think about what they ate and drank for dinner the night before. Have them write or draw all those foods and beverages on their work sheets. Help the students label their drawings. Collect the work sheets and save them for Activities 20 and 22. Explain that during those activities they will look at what they ate to identify foods high in calcium and protein.

Activity 19

Understanding that calcium is an important nutrient for growth

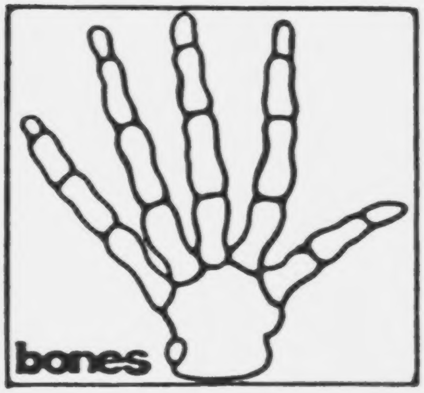
Calcium Helps Me Grow

Advance Preparation

Obtain a skeleton or model or pictures of a skeleton and/or x-rays of bones.

Bring a small chicken wing or wishbone and a glass of vinegar.

Bring a paper punch.



Many Bones

Display and discuss the skeleton, model, picture, and/or x-rays. What do they show? Encourage students to locate bones in their bodies. Can they describe how the bones feel? Why do we need bones? (Bones help support and move our bodies. They also protect our insides.)

To explore their bones, ask the students to do the following:

Place your hands on your ribs. Breathe deeply. Can you feel your ribs move? Ribs help protect your inside organs such as your heart, lungs, and liver.

Rub your hands over your heads. The hardness of the skull helps protect your brains. Can you locate your jaws? The jaw is the only moving part of the skull.

Feel the long bones in your arms and legs. How many different bones can you feel in an arm or leg? Where does an arm or leg bend? In how many directions can it bend? Bones are connected at joints by ligaments. You can bend at joints but not in the middle of hard bones.

Explore your hand bones. How many different bones can you feel in one finger? How long are your finger bones? In how many ways can you bend your hands?

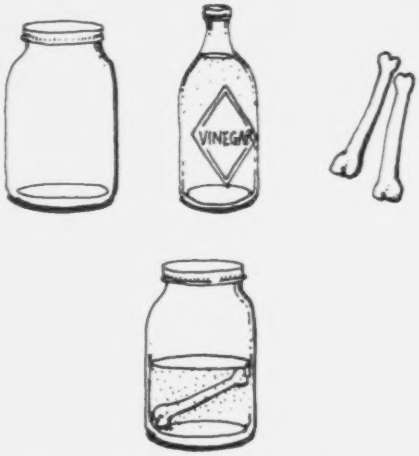
Stand up and bend forward, to the sides, and backward. What bones help your body bend like this? Can you feel your backbone or spine? Divide into pairs, and count the number of small bones connected into one long chain. The chain of small bones is more flexible than one large bone. Try to bend as if your spine were one solid bone.

Pretend that you don't have any bones. How would you have to sit, stand, or walk?

Bones Contain Calcium

Explain that you grow taller because your bones grow longer. Bones need several nutrients, but especially calcium. Calcium is what makes bones hard and strong. Try the following exercises to help students understand how calcium functions in bones.

Hold up a piece of paper and ask the class to pretend that it is a bone full of calcium. Cut the paper into the shape of a bone if you like. Then pass around a paper punch so that each student can punch one hole in the "bone." Pretend that the pieces punched out are calcium. The remaining "bone" without calcium is weak and fragile. Explain that you need calcium not only to grow strong bones but to keep them strong. Bones are living tissues, and calcium enters and leaves them every day. That is why adults continue to need calcium even after they have stopped growing taller.



Pass a small chicken bone around the class so that students can feel its rigidity and strength. Then place the bone in a glass of vinegar. The vinegar (a weak acid) will dissolve the calcium out of the bone. After about two days students will be able to bend the tips of the bone. In about a week, the entire bone will feel rubbery. Without calcium the bone is not strong.

Teeth

Explain that teeth, like bones, contain a lot of calcium. Eating foods with calcium helps to make teeth hard and strong. But unlike bones, teeth can be hurt by eating too much sugar, especially sticky sweets.

Bacteria that are too small to see live on our teeth. The bacteria eat sugar that is left on our teeth from the foods we eat. When the germs eat sugar they make acid. Acid causes cavities. To have healthy teeth it is important to do the following:

Eat a variety of foods, including foods with calcium.

Avoid eating a lot of foods high in sugar.

Brush teeth to remove any sugar.

Floss between teeth.

Have teeth checked regularly by a dentist.

Note: More activities related to dental health are included in Levels K, 2, and 3 of **Nutrition Comes Alive.**

Additional Activities

- As an art project, have students make a wire skeleton of a person or animal.
- Have the students bring in well-cleaned meat, fish, or chicken bones to display.
- Arrange to visit a museum where bones are exhibited.
- Discuss how broken bones heal. Any student who has broken a bone can report what treatment was needed and how long it took for the bone to heal.
- Read ***Your Living Bones*** (see Resources, Section 3). This interesting book provides clear and concise information about bones and how they work.
- Refer to Chapter 9, "Growth," in ***Addison-Wesley Science, Level 1*** (see Resources, Section 1) for additional information about bones or to a similar section in another text.

Activity 20

Math

Identifying foods that are good sources of calcium

What Foods Contain Calcium?

Advance Preparation

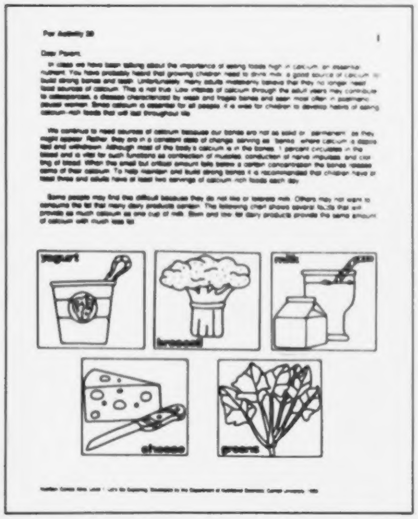
Bring the completed "What I Ate" work sheet H.

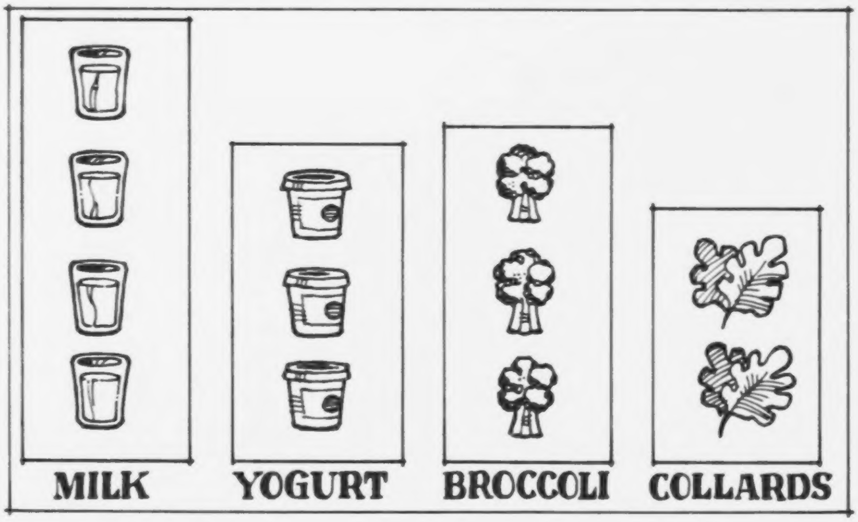
Bring a large piece of paper to construct a bar graph.

Collect Dairy Council food models or magazine pictures of some of the high-calcium foods listed below.

Collect the equipment and ingredients to make either of the milk drinks from the recipes given below.

Copy letter I to parents for each student.





Calcium Food Graph

Distribute the completed "What I Ate" work sheet H. Write the following lists on the chalkboard. If possible show pictures or food models of the foods.

High-Calcium Animal Foods	High-Calcium Plant Foods
Milk	Collard and turnip greens
Cheese	Kale
Yogurt	Broccoli
Pudding	Tofu (soybean curd)
Ice cream	
Salmon, sardines, or smelt (fish with edible bones)	Soybeans, kidney beans, other dried beans, peas, lentils

Review the foods with the students. If some are unfamiliar, perhaps you or the students could bring samples from home.

Point out that other foods contain calcium but in smaller amounts than those listed. Ask the students to circle all of the foods on their work sheets that contain a lot of calcium. Remind them to think about whether any combination foods are high in calcium. For example, did they eat cheese on a pizza or milk on cereal?

Using a large piece of paper create a bar graph to show how many students ate different foods high in calcium. You could draw small pictures on the graph so it looks something like the illustration.

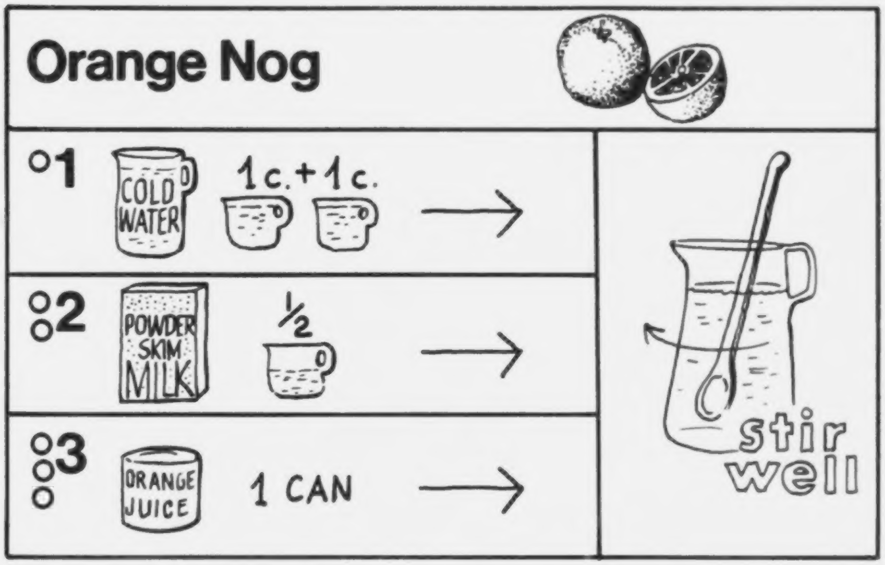
Emphasize that milk is an excellent source of calcium. It is recommended that first graders drink 3 cups of milk each day. Low-fat (1 percent and 2 percent) or skim milk is considered especially nutritious because it contains the same nutrients as whole milk but less fat and calories.

Collect and save work sheets to use again in Activity 22.

A Milk Drink

Use one of the following recipes for a delicious milk drink. You might illustrate the recipe steps on a large sheet of paper as shown. If possible, divide the class into smaller groups and invite volunteers to help with the groups.

Each recipe makes 3 cups. Students may blend the drinks by shaking them in a jar.



Molasses Nog

3 cups skim milk
2-3 tablespoons molasses

Blend or shake well.
Chill.

Orange Nog

2 cups cold water
½ cup powdered dry skim milk
1 can (6 ounces) concentrated unsweetened orange juice

Blend or shake well.
Chill.

Sing "Wobbly Will"

Teach the class to sing the song to the tune of "Pop Goes the Weasel."

Wobbly Will

by Susan K. Nelson

I have a friend named Wobbly Will,
He won't eat milk or cheese,
And when he stands to try to walk,
He drops to his knees!

Since Will never eats broccoli,
Yogurt, kale, or greens,
No matter how he tries to move,
He wobbles and he leans.

My friend Will can't really chew,
His teeth are soft as jelly,
And every food he tries to eat,
Just drops into his belly!

Letter to Parents

To help involve the parents in their children's learning, give each student a copy of letter I to take home. The letter emphasizes the importance of dietary calcium for bone growth and maintenance. It also lists sources of calcium and suggests ways to increase dietary intakes. Review and discuss the milk equivalent chart with the students before they take it home.

Additional Activities

- Set up a classroom store and ask students to bring in empty food containers. Mark those that contain a lot of calcium.
- Make yogurt (recipe is in Appendix 3).
- Have a calcium-tasting party. Encourage the students to examine and then taste several different foods that are high in calcium. Choose foods that are not familiar to the students.

Activity 21 **Science, Health, Fitness**

Understanding that protein is a nutrient important for growth

Protein Helps Me Grow

> **Advance Preparation**
>
> Bring small rubber bands, one for each student.

Muscles Help Us Move

Ask the students to feel how their arm muscles change shape when they clench their fists. Now ask them to name the muscles that they use as they pretend to do the following:

Jog (Leg, arm muscles.)

Ride a bike (Leg muscles.)

Write their names (Hand, arm muscles.)

Read a book (Muscles around eyes and in neck.)

Swim (Arm, leg, and neck muscles.)

Eat (Arm, hand, jaw, throat muscles, and tongue—also a muscle!)

Stand perfectly still (Muscles all over the body.)

Explain that we need muscles to move every part of our bodies. Besides using "voluntary" muscles that we can control to move our arms, legs, and so on, we also use "involuntary" muscles that work automatically. We depend upon involuntary muscles to make our hearts beat, lungs breathe, and blood circulate, among other things.

To demonstrate how muscles work, give each student a rubber band. Ask them to pretend that the rubber band is a muscle and that their fingers are nothing but bones. Muscle helps bones move. They can insert a forefinger and thumb inside the rubber band. As they separate their fingers the rubber band will stretch and pull on their fingers just as muscles pull on bones. Point out that regular exercise helps strengthen muscles.

For more information about specific muscles and how they work, refer to ***The Human Body: The Muscles*** (see Resources, Section 3).

Fuel for Muscles

Explain that strong, healthy muscles need many different kinds of food, especially foods with protein. In the next activity students will learn about foods high in protein.

Teach the students to sing the following song to the tune of "A Bicycle Built for Two."

Protein, Protein

by Susan K. Nelson

Protein, protein
How do you help me grow?
You build muscles,
so that my arm can throw.
You help me walk and carry,
and chase my new dog Harry.

So, I'll eat you,
and when I do,
I'll be stronger to play,
each day!

Hustle Some Muscle

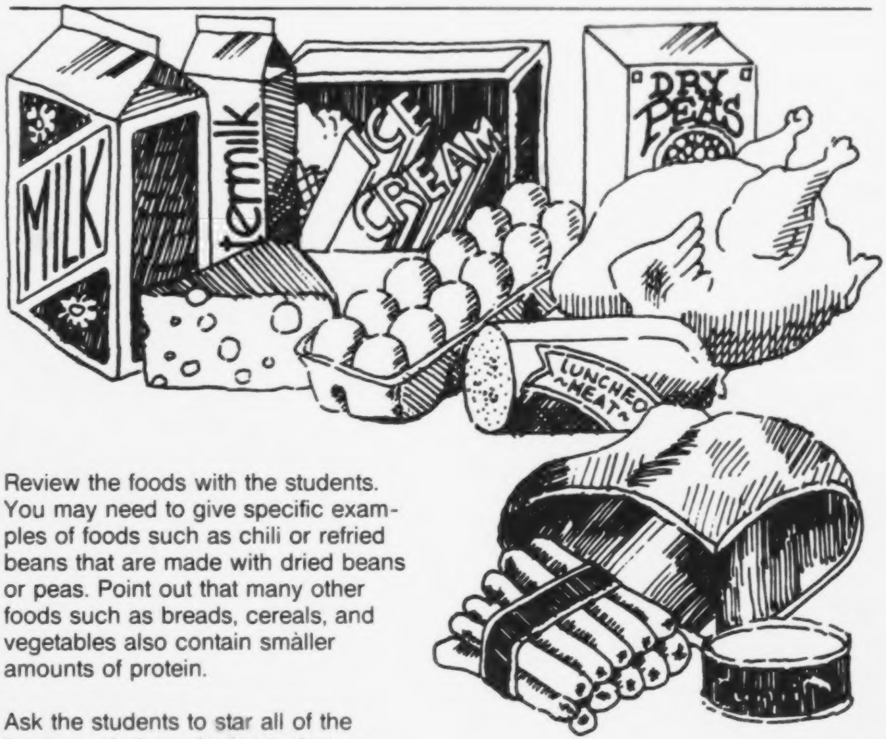
- Encourage the students to play active muscle-moving games during recess.
- Have the students try to move like different animals (duck, fish, bird, dog, elephant). What muscles do they use?
- Students might test some of their muscles and then do exercises to strengthen them. For example, they might do sit-ups to strengthen stomach muscles or push-ups to strengthen arm muscles. For more exercise ideas, see **Nutrition Comes Alive**, Level 2.

Activity 22

Language Arts

Identifying foods that are good sources of protein

What Foods Contain Protein?



Advance Preparation

Bring the completed "What I Ate" work sheet H.

Collect Dairy Council food models or magazine pictures of a variety of the high-protein foods listed below.

Collect magazines with pictures of food, cardboard, string, and coat hangers for mobiles or collages.

Protein Stars

Distribute the completed "What I Ate" work sheet H. Write the following lists on the chalkboard. If possible show pictures of the foods.

High-Protein Plant Foods	High-Protein Animal Foods
Dried peas	Meats
Dried beans	Poultry
Lentils	Fish and shellfish
Nuts	Eggs
Peanut butter	Milk
Tofu	Cheese
	Yogurt

Review the foods with the students. You may need to give specific examples of foods such as chili or refried beans that are made with dried beans or peas. Point out that many other foods such as breads, cereals, and vegetables also contain smaller amounts of protein.

Ask the students to star all of the foods on their work sheets that are good sources of protein. Remind them to think about whether any combination foods contain high-protein foods. For example, did a soup contain milk or dried beans?

Tally the number of students who ate each type of high-protein food. Which foods were most common? How many different ways were they prepared? How many foods that are high in protein are also high in calcium?

Protein Mobiles or Collages

Students can create mobiles or collages to highlight foods that are high in protein. For mobiles, have the students cut pictures of high-protein foods from magazines, paste them on cardboard for durability, and string them from coat hangers. For collages, have the students paste the pictures on newsprint or cardboard.

Students may work alone or in groups. Some students may focus on foods from animal sources while others focus on foods from plants.

Choose Less Fat

High-protein foods such as meats and dairy products are important parts of the American diet. Unfortunately, many of these foods are high in fat. Not only may a high fat consumption lead to obesity, but the saturated fats found in animal products may contribute to heart disease. In light of these findings it has been suggested that people limit the amount of total and saturated fat they eat. Suggestions for decreasing saturated fat in the diet include substituting fish, chicken, or legumes for meats, substituting margarine for butter, limiting consumption of eggs, and selecting low-fat dairy products.

Try making chili con carne, a food that combines protein from nonfat beans with higher-fat beef. Draining the fat from the cooked beef decreases the overall fat content.

Chili is a spicy one-pot meal that comes to us from the West and chuckwagon days.

Chili con Carne

(makes 24 small servings)

Ingredients

- 1 medium onion, chopped
- 1 pound ground beef
- 3 to 4 cups canned kidney beans
- 1 15-ounce can crushed tomatoes
- Garlic powder, to taste
- Chili powder, to taste

Equipment

- Knife
- Frying pan
- Stove
- Spoon
- Can opener
- Eating utensils

1. Brown onion and beef together. Drain off the fat.
2. Add beans, tomatoes, garlic, and chili powder.
3. Simmer 15 to 20 minutes.

Evaluation

Advance Preparation

Obtain copies of the school lunch menu.

Collect pictures or wrappers of a variety of foods, several high in calcium and protein.

Arrange with the food-service personnel or principal to conduct an advertising campaign.

Broccoli
Build Strong Bones

Does It Have Protein or Calcium?

1. Set up a store with food pictures and wrappers. Ask the students to select two foods high in protein and two foods high in calcium.
2. Distribute copies of the lunch menu and review it with students. Have them circle foods high in calcium and star those high in protein.
3. Have the students draw pictures of foods that contain calcium and protein.

Spread the Word

Have students use their knowledge about calcium to launch an advertising campaign in the school. Arrange with the food-service director or principal to designate a "Calcium Week."

An advertising campaign might include the following components:

—Posters showing foods high in calcium.

—Displays or mobiles drawing attention to featured items in the cafeteria or in vending machines.

—Place mats with riddles, dot-to-dots, or puzzles about calcium.

—Jingles or songs about calcium.

Appendix 1

Dairy Council Offices in New York State

Dairy Council of Niagara Frontier Area
Buffalo (716) 634-1080

Dairy Council of Metropolitan New York, Inc.
New York (212) 682-7961

Dairy Council of Rochester Area, Inc.
Rochester (716) 288-1758

Dairy, Food and Nutrition Council, Inc.
Area Offices:
Arkport (607) 295-7222
Binghamton (607) 724-7598
Latham (518) 785-5441
Poughkeepsie (914) 452-5630
Syracuse (315) 475-2721

Appendix 2

Cornell Cooperative Extension

ALBANY
518-765-2874
Cooperative Extension
Albany County Resources Development Center
Martin Road, R.D. 2, Box 131
Voorheesville, NY 12186

ALLEGANY
716-268-7644
Cooperative Extension
R.D. 1, Box 226
Belmont, NY 14813

BROOME
607-772-8953
Cooperative Extension
Farm, Home and 4-H Center
840 Front Street
Binghamton, NY 13905

CATTARAUGUS
716-699-2377
Cooperative Extension
Cooperative Extension Center
Parkside Drive
Ellicottville, NY 14731

CAYUGA
315-255-1183
Cooperative Extension
Farm, Home and 4-H Center
248 Grant Avenue
Auburn, NY 13021

CHAUTAUQUA
716-664-9502
Cooperative Extension
Chautauqua County Agricultural Center
R.D. 2
Turner Road, Box 341 A
Jamestown, NY 14701-9608

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Appendix 3

How to Make Yogurt

(makes about 1 quart)

Ingredients

1 quart water, 110° F

2 cups nonfat dry milk

3 tablespoons plain yogurt
(labeled "active culture")

Equipment

Large spoon

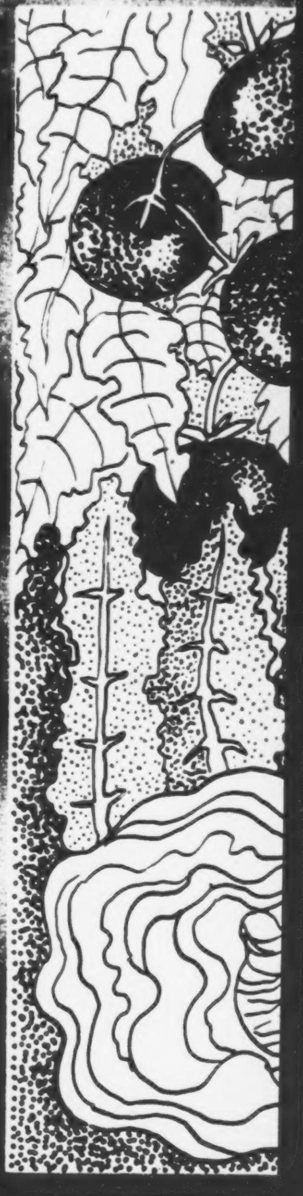
2-quart saucepan

Candy thermometer

Containers for yogurt—four
½-pint containers with covers
or two pint containers with cover

Baking pan, 2 inches deep, to hold
water in which to incubate yogurt

1. Dissolve dry milk in water in saucepan.
2. Heat milk to 180° F for 15-20 minutes.
3. Cool milk to 110° F. Remove film from top of milk.
4. Gently stir yogurt into milk.
5. Fill baking pan with water at 110° F.
6. Pour yogurt-milk mixture into containers.
7. Place yogurt containers in baking pan. Set pan in oven and maintain water temperature at 110° F for 3-4 hours.
8. Refrigerate as soon as yogurt begins to set.



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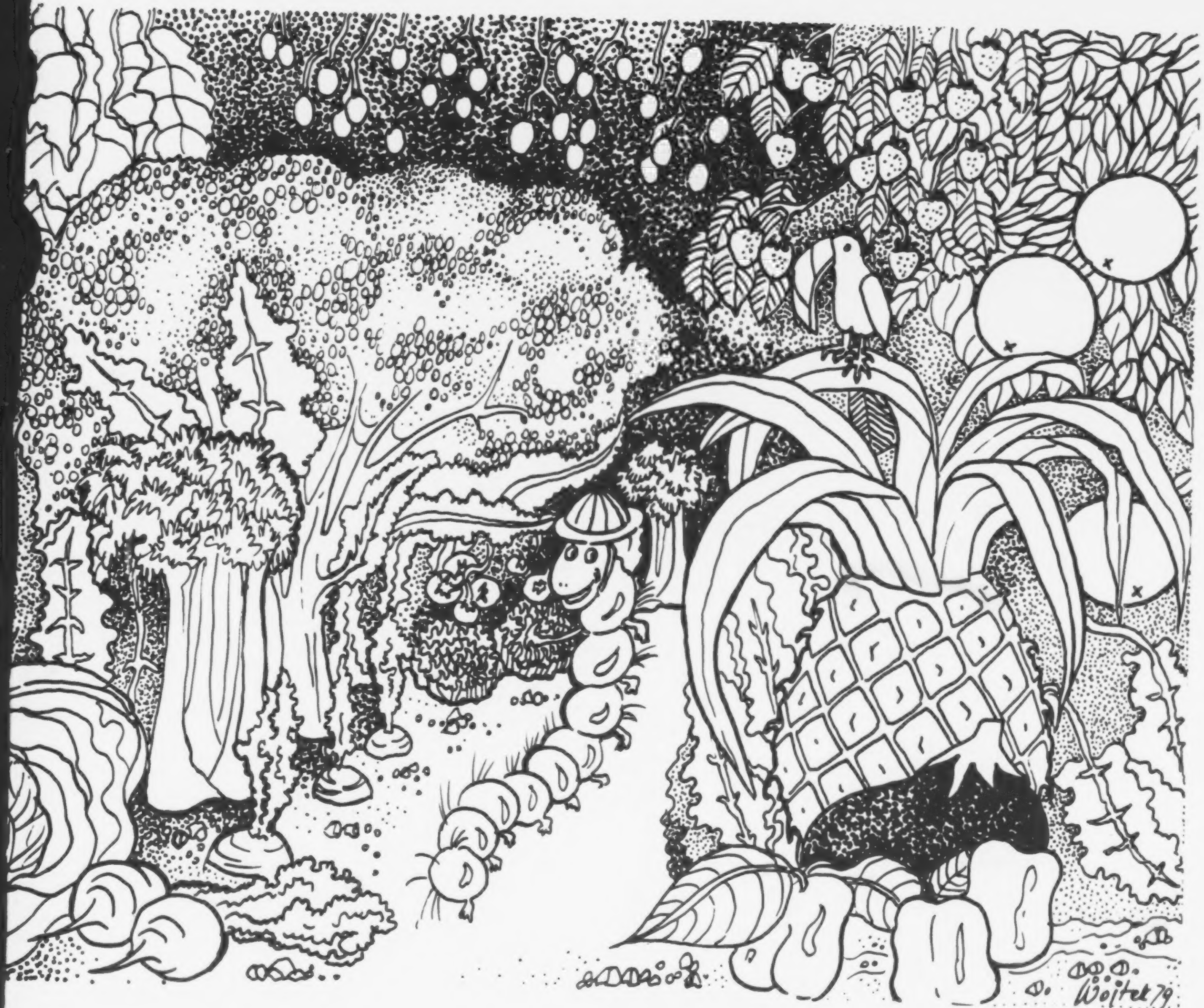
Let's Go Exploring



Level 1

Work Sheets, Letters to Parents, Recipes
New York State
Revised Edition

NUTRITION COMES ALIVE

SP 028 331

Nutrition Comes Alive

Level 1
Let's Go Exploring

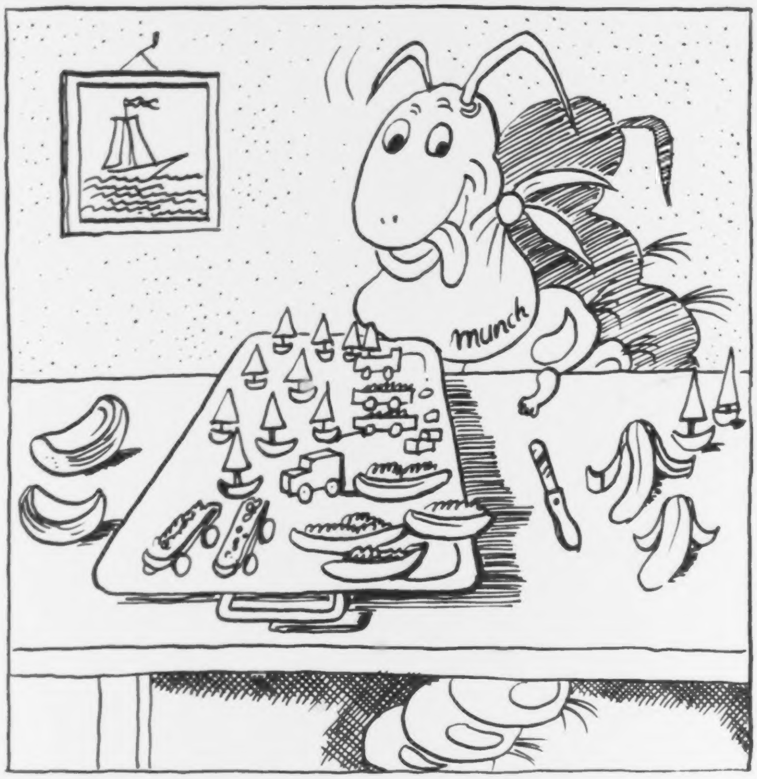
Story, Work Sheets, Letters to Parents

A Revision by
Tracy J. Farrell

Based on materials developed by Susan K. Nelson

Division of Nutritional Sciences, a division of the New York State College of Human Ecology and the New York State College of Agriculture and Life Sciences, Cornell University, Ithaca, New York. 1985.

Story, Work Sheets, Letters to Parents



Story, Work Sheets, Letters to Parents	Letter Code
For Section 1	
"Squirm Worm Visits Munch" Story	A
Letter to parents	B
For Section 2	
Where Does Food Come From?	C
Letter to Parents	D
Mystery Plants	E
Munch's Fantasy Jungle	F
From Cow to School	G
For Section 3	
What I Ate	H
Letter to parents	I

For Activity 1

Squirm Worm Visits MUNCH

Story By:
Susan Kay Nelson

One day, Squirm Worm decided to visit MUNCH in the city. Squirm Worm hadn't seen MUNCH for a long, long time.

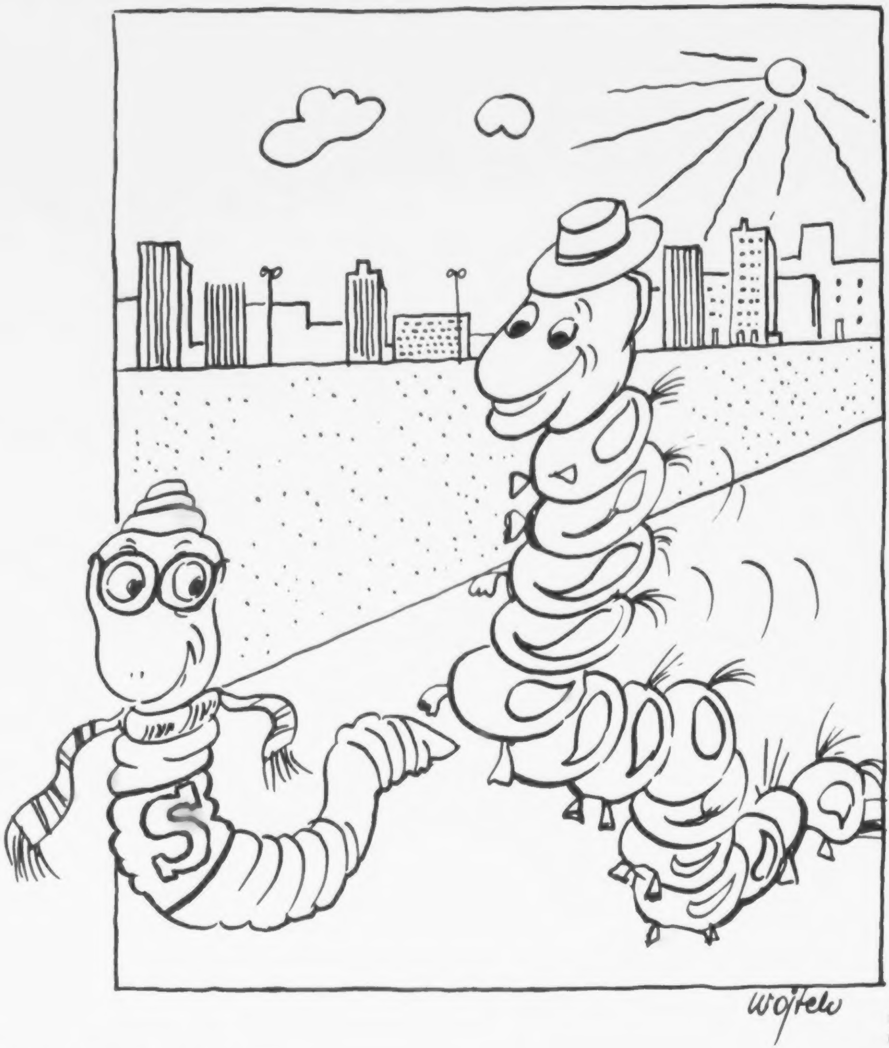
"Hello, Squirm Worm," cried MUNCH with excitement. "Won't you come in?"

"Thank you, MUNCH . . . why, it's great to see you. You're looking wonderful!" said Squirm Worm.

"Thank you, and I'm feeling great these days too!" said MUNCH.

"Why, MUNCH! I just can't get over how you've grown . . . and your eyes and fuzzy body look so green and healthy! What have you been doing that you look and feel so good?" asked Squirm Worm.

"Nothing, just going to school," said MUNCH.



Nutrition Comes Alive, Level 1, Let's Go Exploring. Developed by the Department of Nutritional Sciences, Cornell University, 1985.

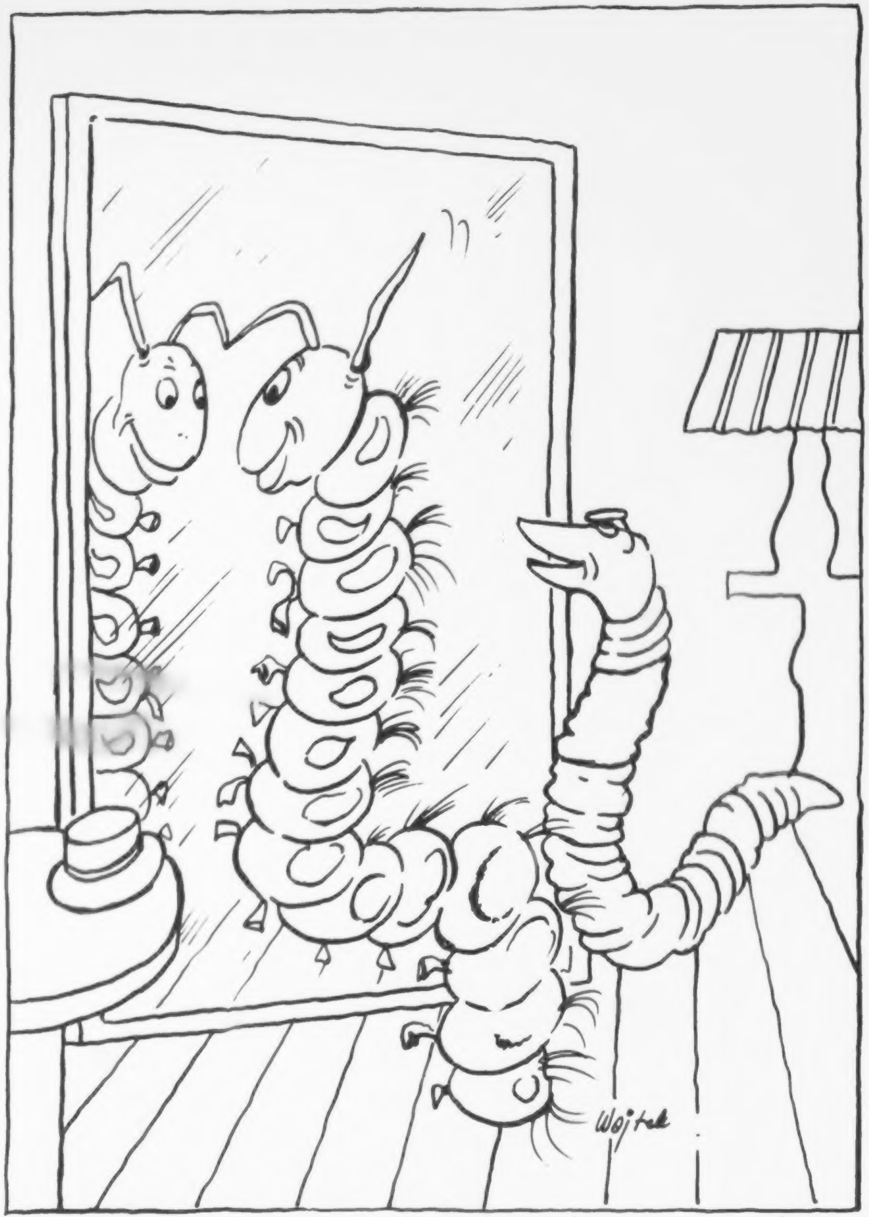
Squirm Worm laughed. "Now MUNCH, going to school makes your mind grow, but it doesn't make your body grow and look healthy. You know, MUNCH, growing is a lot more than just getting taller and longer. Your hair grows; your fingernails grow. When you get a cut, new skin grows. All sorts of important things are growing in your body . . . and that helps you to feel great!"

"But then why am I growing longer and longer, and why do I feel so great?" asked MUNCH.

"Think about it MUNCH, there's something you do every day that helps you grow and feel great. What do you do every day?" asked Squirm Worm.

"Well, I . . . I go to school, and I eat, and I sleep . . . and I play, and, oh yes, I brush my teeth!" said MUNCH. "Well, I usually brush my teeth. Today I forgot. I'd better do it right now!"

"Well, MUNCH, you do a lot of things that help you feel great, but what do you suppose helps you to grow?" asked Squirm Worm.



"I don't know," said MUNCH looking puzzled.

"Oh MUNCH," said Squirm Worm, "you aren't thinking. Why do you go to school?"

"To learn," said MUNCH. "Look, I can even write the first seven letters of the alphabet on my chalkboard! A, B, C, D, E, F, and G!"

"Great!" said Squirm Worm. "Now, why do you brush your teeth?"

"So that they stay clean and healthy!" said MUNCH.

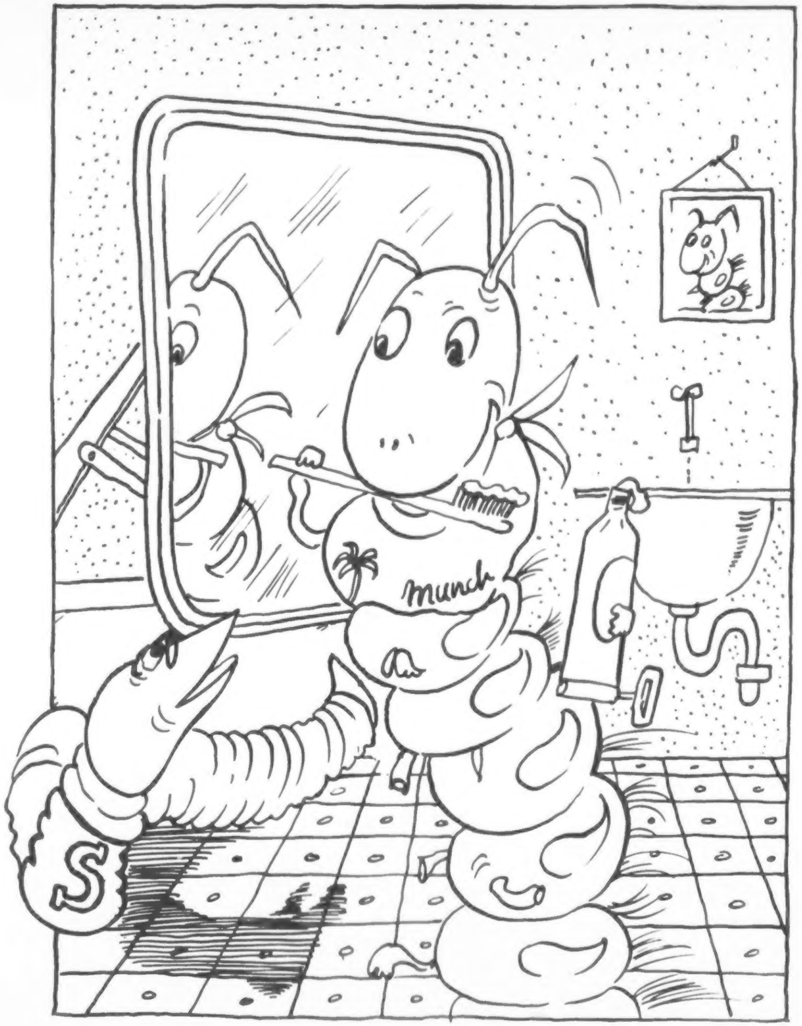
". . . and why do you sleep?" asked Squirm Worm.

"So that I'm not too weak to play!" said MUNCH.

". . . and why do you play?" asked Squirm Worm.

"That's easy! I play because it's fun!" MUNCH said with a giggle. "In fact, that's what we should do right now. Let's go to the park!"

"Great!" said Squirm Worm. "Playing will also give us the exercise we need to be healthy!"



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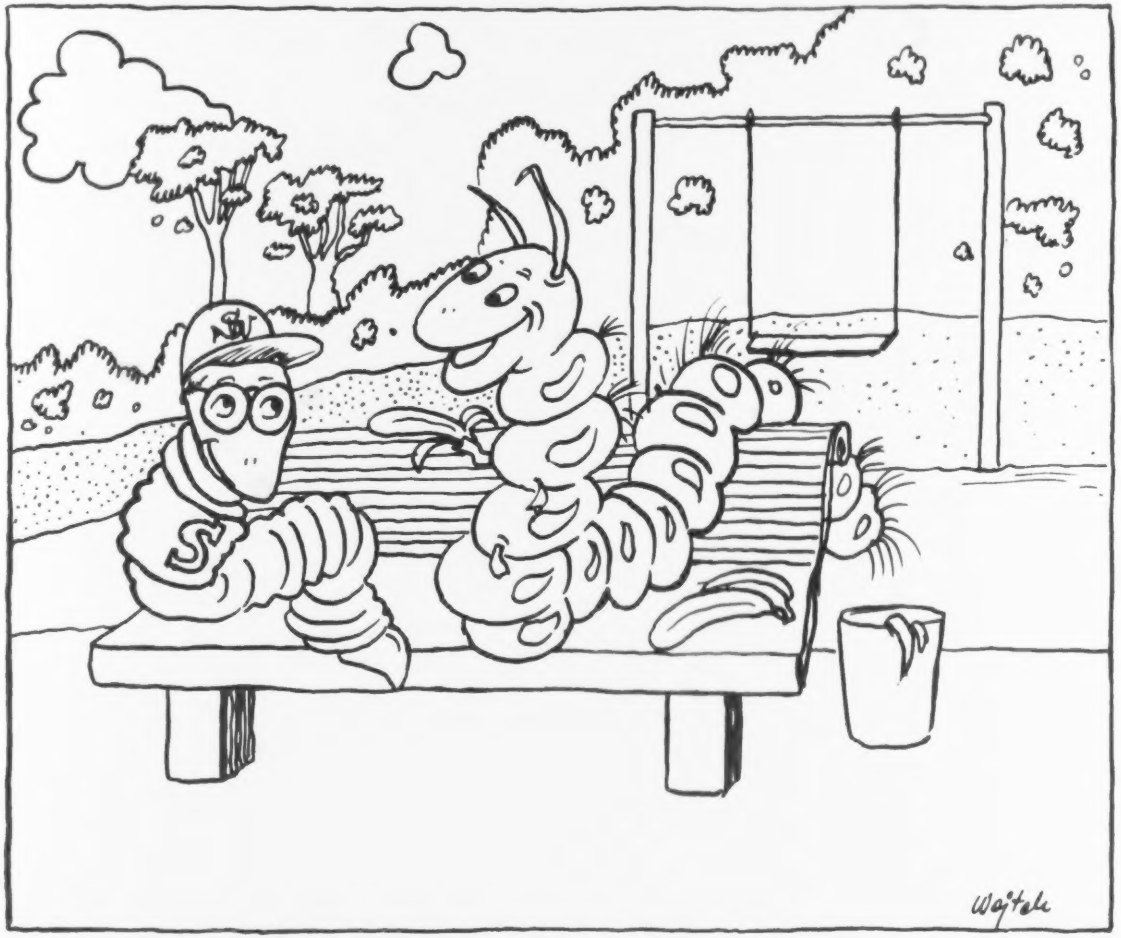
"All this playing ball is making me hungry; I think I need something to eat!" exclaimed MUNCH.

"Yes, you see, MUNCH, eating food gives you the energy to play. If you don't eat enough food, you feel very, very weak," said Squirm Worm.

"You must be right!" said MUNCH. "Let's go home and make a snack right now!"

"Good idea, MUNCH. Food gives us energy to play and food also helps us grow," said Squirm Worm.



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"Here we are! Close the door and then you can help me set the table," said MUNCH. "You know, I have friends who eat a lot of food, and they don't seem to be growing very much and never feel great like me!"

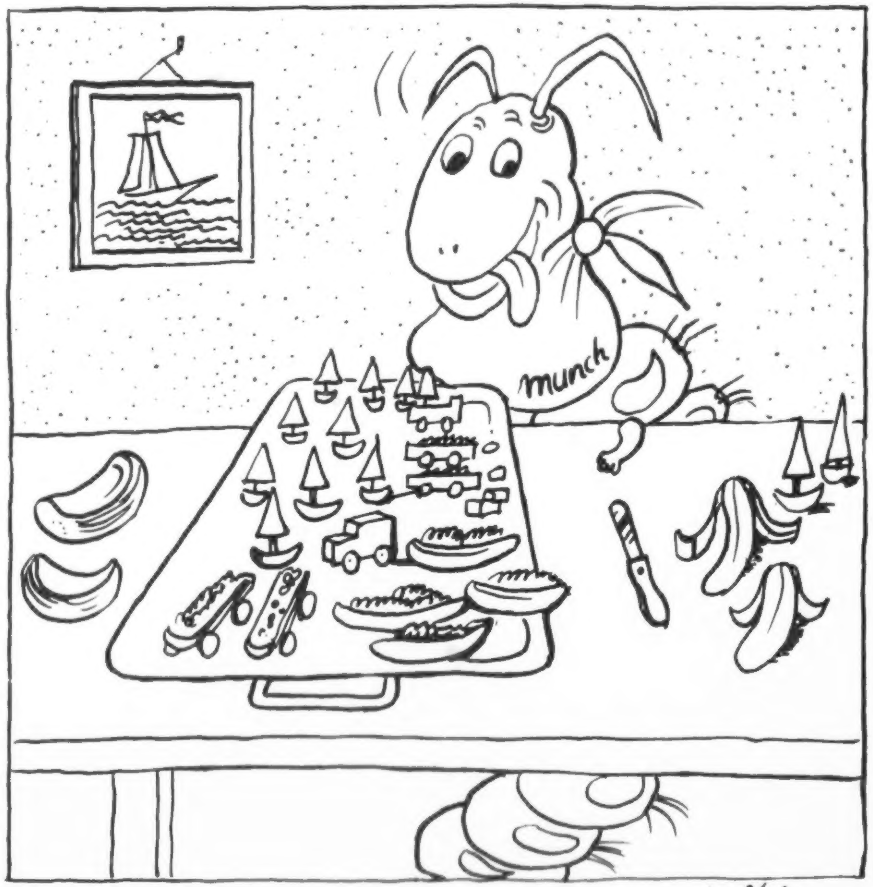
"Well, MUNCH, remember . . . growing isn't just getting taller. There are a lot of important things inside your body that grow too. But maybe your friends aren't eating the right kinds of foods to help their bodies grow inside and out. You know, some foods do help you grow better than others," said Squirm Worm.

"Gee, I didn't know that!" said MUNCH.

"Yes, now tell me . . . what are we going to have for a snack?" asked Squirm Worm.

"I'm going to chop up this yummy green pepper, and then we can eat it with some lumpy peanut butter," said MUNCH. "This is one of my favorite snacks, but I also like chewy meat and bread, mushy hot beans, juicy fruits, and crunchy vegetables! And sometimes for a fun snack I make sailboats, trucks, and all sorts of funny things out of these foods . . . and then . . . I eat them!"

"That's a fun idea, and all those foods are good foods for growth," said Squirm Worm. "Hey, I'm getting thirsty! What are we going to drink? I'll pour it."



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"Oh, I love to drink water, milk, and juice," said MUNCH, "with meals or snacks. Why not pour some orange juice?"

"Okay, MUNCH. I love orange juice too!" said Squirm Worm.

"Well, let's sit down and eat our snack! It sure looks yummy, doesn't it?" exclaimed MUNCH.

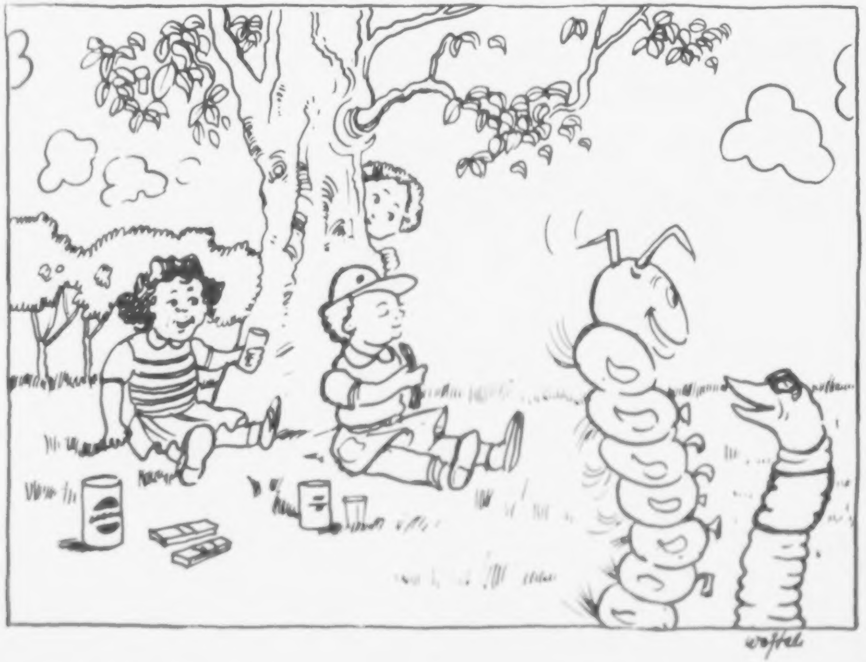
"It sure does," said Squirm Worm. "No wonder you're feeling great! You are eating and drinking all kinds of good foods each day! It's too bad that some of your friends aren't feeling as good . . . they might be eating too many sweets and sugary drinks. Sweets and sugary drinks are foods that aren't so good for growth and feeling great. Plus, they can hurt your teeth!"

"That's a good idea, MUNCH," said Squirm Worm with a smile. "Since we've finished our snack, let's go tell your friends right now about how good foods can help you grow best and help you feel great!"

"Let's go!" said MUNCH.

And MUNCH and Squirm Worm did!

"I'd better tell my friends about that!" said MUNCH.



For Activity 3

Dear Parent,

We have been talking in class about the importance of breakfast for early morning energy. Why is breakfast so important? Scientific research shows that:

- Eating food in the morning helps a child stay more mentally alert and physically efficient throughout the morning hours.
- Skipping or skimping on a morning meal can lead to a low blood glucose level during the morning.
- A low blood glucose level can bring on feelings of hunger, often referred to as midmorning slump.

Morning Meal Choices Affect Blood Glucose Levels

When various foods are eaten, they are broken down by the body to glucose, a basic nutrient that is carried by the blood to cells for growth and maintenance. A morning meal that includes both protein and carbohydrate or starch helps maintain our blood glucose above the fasting level. Blood glucose falls to a "fasting level" several hours after we eat. If we do not eat, the level dips further, forcing the body to draw on its limited stores.

Many foods can supply the carbohydrates and protein the body needs. We need to learn to eat combinations of foods that will supply our needs and help us to avoid a midmorning slump. Graphs on the following page show how different breakfast foods can affect blood glucose levels. Breakfast foods that provide adequate amounts of protein and carbohydrate are also listed.

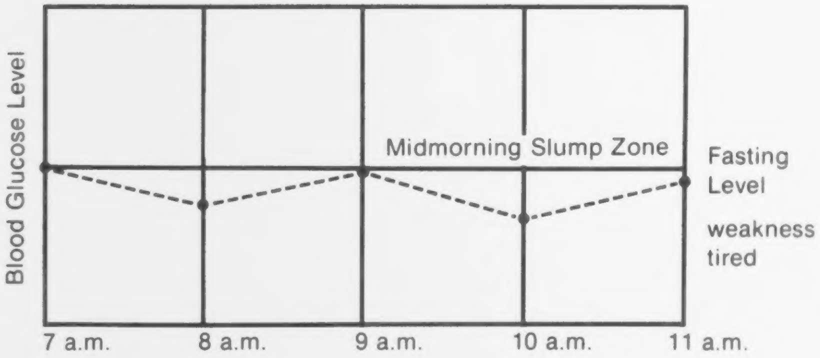
Adapted with permission from ***Food in the Morning*** by M. E. Downing, Cooperative Extension, 4-H, and M. C. Mapes, Division of Nutritional Sciences, Cornell University, 1977.

B

Skips
Morning Meal

Energy must come from limited glucose stored in body

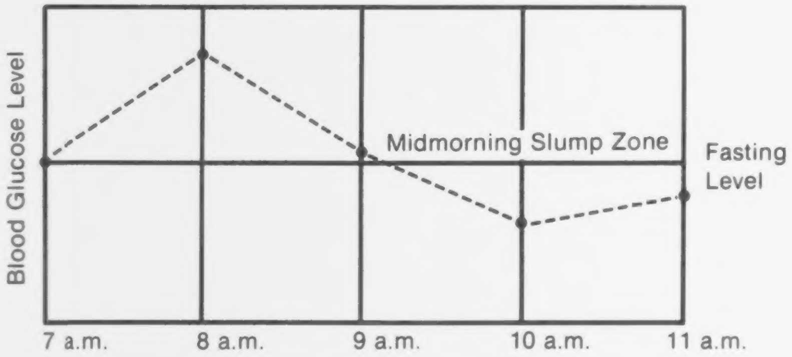
Carbohydrate	0 grams
Protein	0 grams



High Carbohydrate
Morning Meal

Ex. 2 raised doughnuts and 1/2 cup orange juice

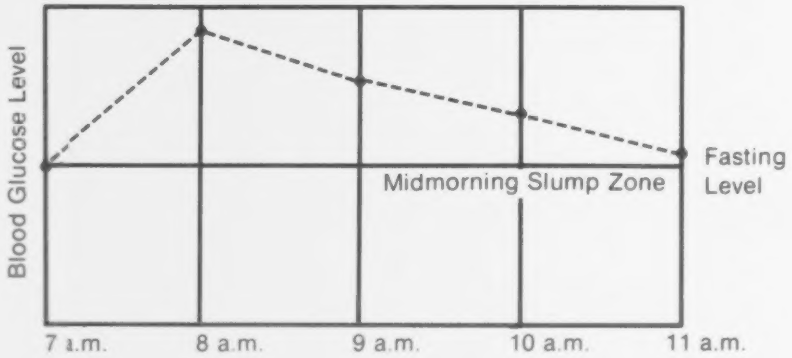
Carbohydrate	45 grams
Protein	6 grams



Meets Morning
Meal Needs

Ex. whole wheat toast with peanut butter and yogurt with strawberries

Carbohydrate	65 grams
Protein	16 grams



More good breakfast choices are listed below.

1. Milk
   Peanut butter sandwich with raisins
2. Yogurt topped with fruit and unsweetenid cereal
3. Grapefruit juice
   Leftover pizza slice
4. Orange slices
   Toast with cottage cheese and cinnamo
5. Apple juice
   Hard-cooked egg
   Carrot sticks
   Crackers
6. Apple slices with peanut butter
   Bagel
   Milk
7. Banana milk shake
   Toast
8. Orange juice
   Cream of wheat with peanut butter and milk
9. Milk
   English muffin with melted cheese and tomato slice
   Peach

Nutrition Comes Alive, Level 1, Let's Go Exploring. Developed by the Department of Nutritional Sciences, Cornell University, 1985.

Estimado Padre:

En nuestro salón de clases hemos estado conversando sobre la importancia del desayuno para obtener las energías para comenzar el día. ¿Por qué es importante el desayuno? Las investigaciones científicas demuestran que:

- Comer en la mañana ayuda al niño a mantenerse mentalmente alerto y en buenas condiciones físicas durante las horas de la mañana.
- Cuando no se come por la mañana o se come poco es muy probable que el nivel de glucosa de la sangre baje demasiado.
- Un nivel bajo de glucosa en la sangre podría dar una sensación de hambre, a la que muchos se refieren como la "flojera de media mañana."

La Selección de Alimentos Afecta el Nivel de Glucosa de la Sangre

Cuando se comen varios alimentos, éstos son convertidos por el organismo a glucosa, un nutriente fundamental que es transportado por la sangre a las células para las funciones de crecimiento y mantenimiento. Una comida en la mañana que incluya tanta proteína como hidratos de carbono o almidones ayudan a mantener nuestra glucosa sanguínea sobre el nivel de ayuno. La glucosa sanguínea cae a un "nivel de ayuno" varias horas después de haber comido. Si no comemos, ese nivel baja mas aún, forzando el cuerpo a sacar de sus reservas limitadas.

Existen muchos alimentos diferentes que pueden proveer los hidratos de carbono y proteínas que el cuerpo necesita. Necesitamos aprender a comer combinaciones de alimentos que llenen nuestra necesidades y nos ayuden a evitar la flojera de media mañana. Las gráficas en la página siguiente ilustran como diferentes alimentos de desayuno afectan los niveles de glucosa de la sangre. Alimentos de desayuno que proveen cantidades adecuadas de proteína e hidratos de carbono se incluyen también.

---

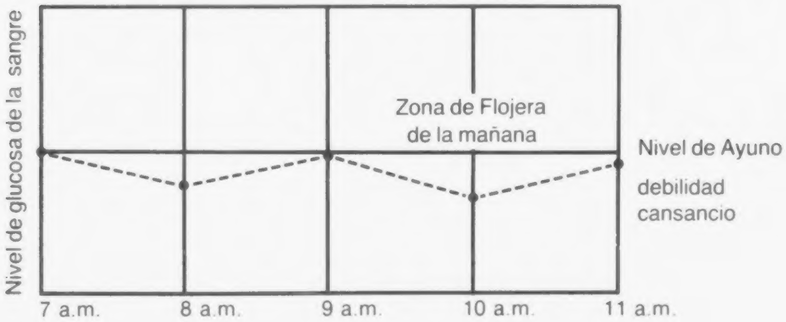
*Mas desayunos adecuados para escoger se incluyen a continuacion. Adaptado con permiso de *Food in the Morning* by M. E. Downing, Cooperative Extension, 4-H, and M. C. Mapes, Division of Nutritional Sciences, Cornell University, 1977

B

Omitir el Desayuno

La energía tiene que salir de las reservas limitadas de glucosa del cuerpo

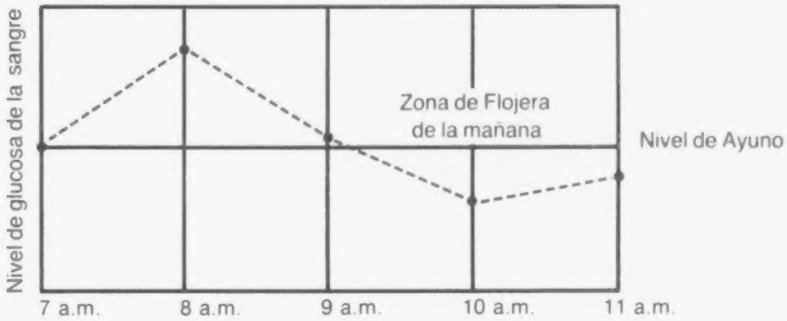
Hidratos de carbono	0 gramos
Proteína	0 gramos



Desayuno Alto en Hidrato de Carbono

Ej. 2 donas y 1/2 taza de jugo de china o naranja

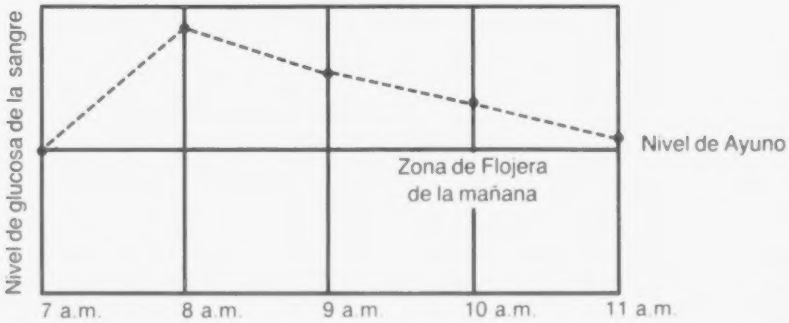
Hidratos de carbono	45 gramos
Proteína	6 gramos



Comida que Llena las Necesidades de Alimentación de la Mañana

Ej. tostada de trigo integro con mantequilla de maní, yogurt o leche con fresas

Hidrato de carbono	65 gramos
Proteína	16 gramos



Ideas para el Desayuno

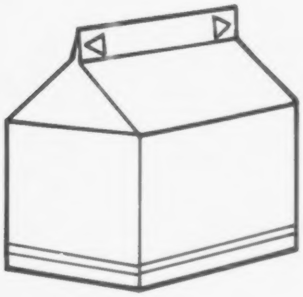
1. Leche
   Emparedado de mantequilla de maní o cacahuete con pasas
2. Yogurt con frutas y cereal sin endulzar
3. Jugo do toronja
   Rebanada de pizza que le queda de otra comida
4. Rebanadas de china o naranja
   Tostada con requesón y canela
5. Jugo de manzana
   Huevo cocido duro
   Pedacitos largos de zanahoria cruda
   Galletas
6. Manzanas en rebanadas con mantequilla de maní
   Bagel
   Leche
7. Batida de leche y guineo
   Tostada
8. Jugo de china o naranja
   Crema de trigo con mantequilla de maní y leche
9. Leche
   Mollete inglés con queso derretido y una rebanada de tomate
   Melocotón
10. Morir Soñando y Mangú
11. Pollo y Panecito
    Puede usar pollo que le haya quedado de otra comida
12. Jugo de china o naranja
    Avena con leche
13. Queso americano y galletas
    Chocolate caliente

For Activity 9 **C**

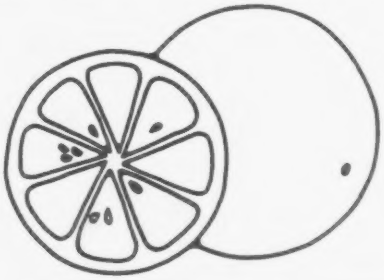
Where Does Food Come From?

Name ____________________

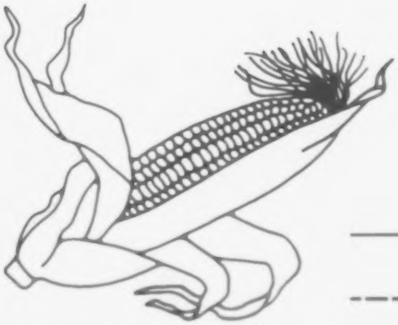
Square ☐ all animal foods.
Circle ○ all plant foods.
Write the name of each food. Color.



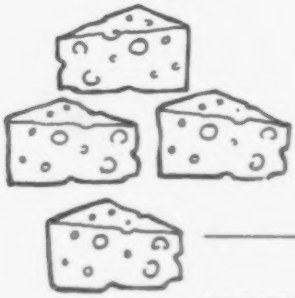
milk



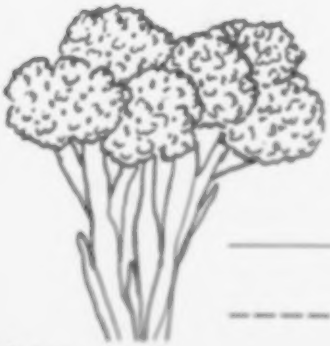
orange



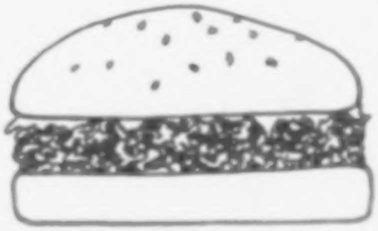
corn



cheese



broccoli



hamburger

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D

For Activity 10

Dear Parents,

We have been exploring vegetables in class, talking about where they come from, what they look like, and how they taste. Vegetables contribute important nutrients to our diets such as vitamins A and C and fiber. Evidence suggests that children who are familiar with a variety of vegetables are also more likely to eat and enjoy them.

On ____________________ we plan to prepare a "surprise salad" in class. If each family contributes one of the foods listed below we should be able to make a delicious "surprise" salad.

Vegetables

- Carrot
- Tomato
- Raw spinach
- Zucchini
- Peas
- Cooked corn
- Celery
- Green pepper
- Bean sprouts
- Cooked potato
- Cucumber
- Cabbage
- Lettuce
- Cauliflower
- Chick peas
- Summer squash
- Onion
- Broccoli pieces
- Radishes

Other Foods

- Hard-cooked egg
- Grated cheese
- Croutons
- Cottage cheese
- Sunflower seeds
- Sesame seeds
- Cooked macaroni

Thank you for your contribution!

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D

Estimado Padre:

Hemos estado conociendo más sobre las hortalizas en nuestro salón de clases: de donde vienen, cual es su apariencia y a que saben. Las hortalizas contribuyen nutrientes importantes a nuestras dietas, tales como las vitaminas A y C además de fibra. Los estudios sugieren que es más probable que los niños que están familiarizados con una variedad de hortalizas comen y disfrutan las mismas.

En ______________________ estamos pensando preparar una "ensalada sorpresa" en nuestro salón de clases. Si cada familia contribuye uno de los alimentos que mencionamos a continuación podremos preparar una ensalada "sorpresa" deliciosa.

Hortalizas

Zanahoria
Tomate
Espinaca fresca
Calabacín
Guisantes
Maíz cocido
Tallo de apio
Pimiento verde
Retoños de habichuelas o frijoles

Papa cocida
Pepinillo
Repollo
Lechuga
Coliflor
Garbanzos
Calabaza de verano
Cebolla
Pedazos de brécol
Rábanos

Otros—Alimentos

Huevo cocido (duro)
Queso rallado
Croutons
Requesón
Semillas de girasol
Semillas de ajonjolí
Macarrones cocidos

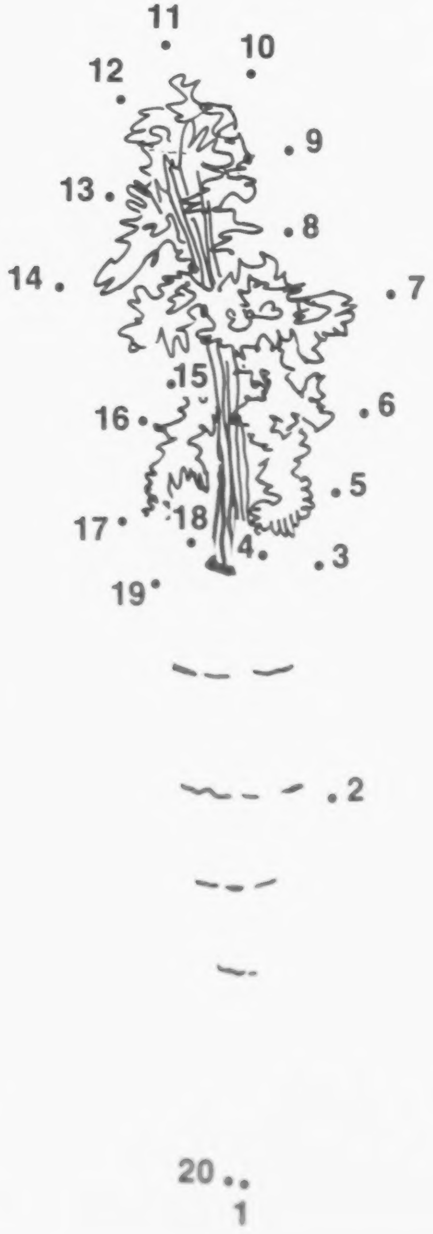
¡Gracias por su contribución!

Mystery Plants

Name ________________________________

We are both vegetables! Connect the dots. Write down our names. Color us!

dot-to-dot


11
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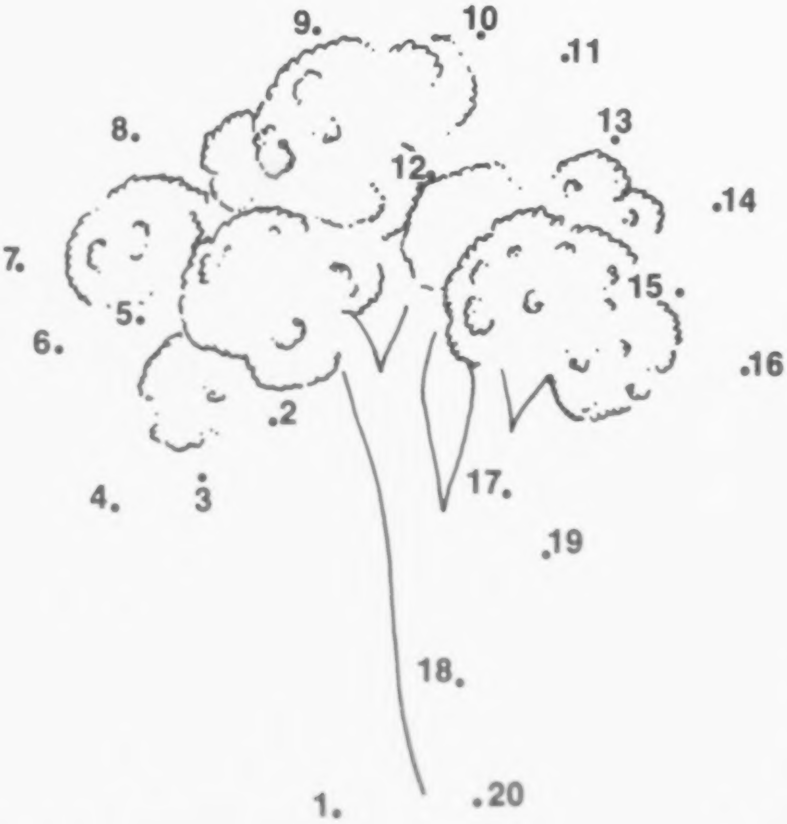
1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20

____

I am ------------------------------

____

(carrots)

____

I am ------------------------------

____

(broccoli)

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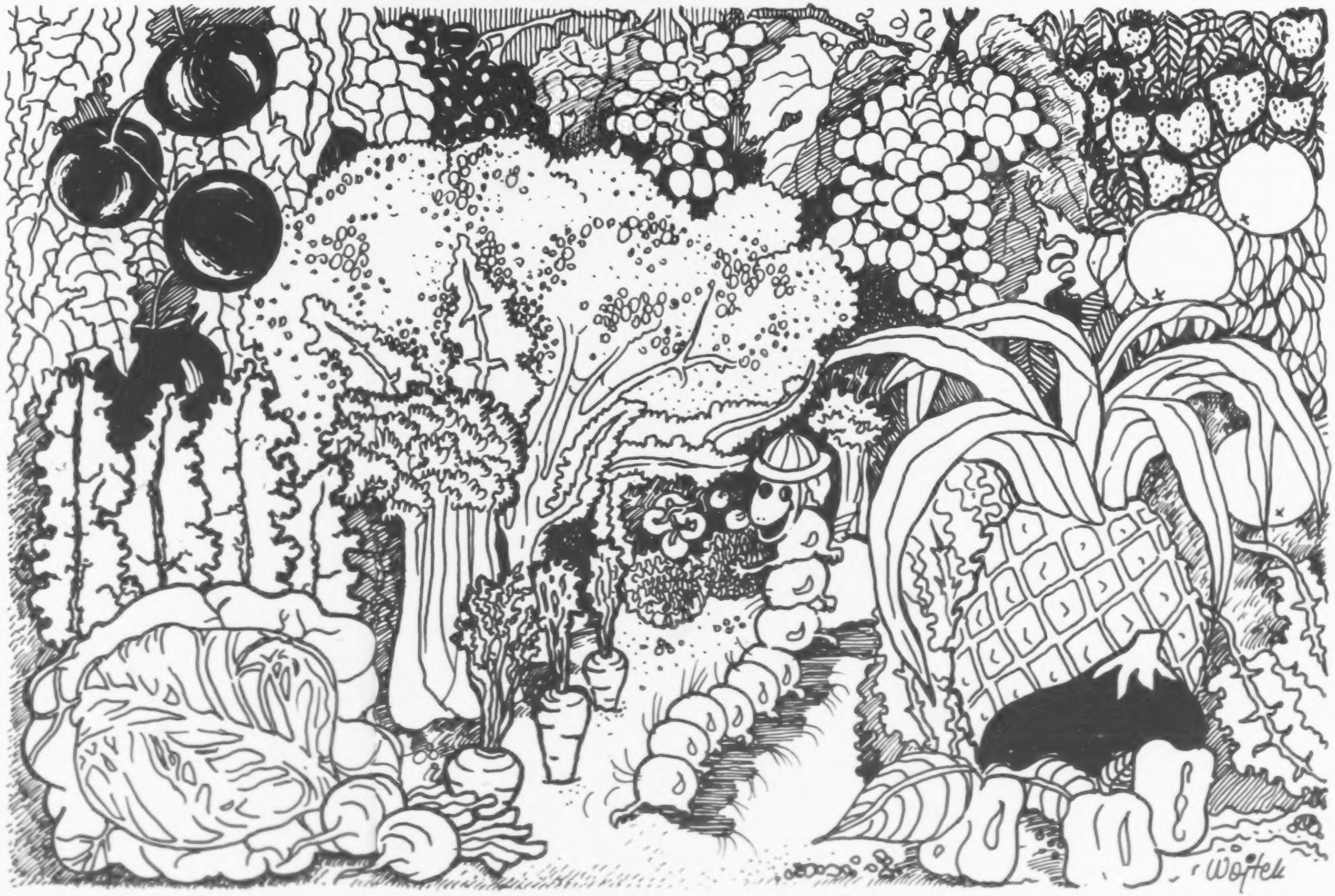
F

MUNCH's Fantasy Food Jungle

Name ______________________________



Can you find these plant foods?
Circle them.
Color them.

celery
eggplant
cabbage

spinach
pineapple
grapes

carrots
tomatoes
strawberries

broccoli
beets
oranges
green peppers

Can you guess what parts ofthe plant these foods are?

For Activity 11

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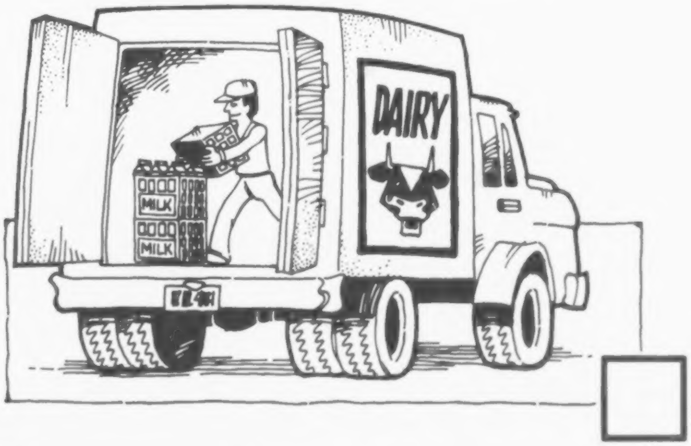
For Activity 14 **G**

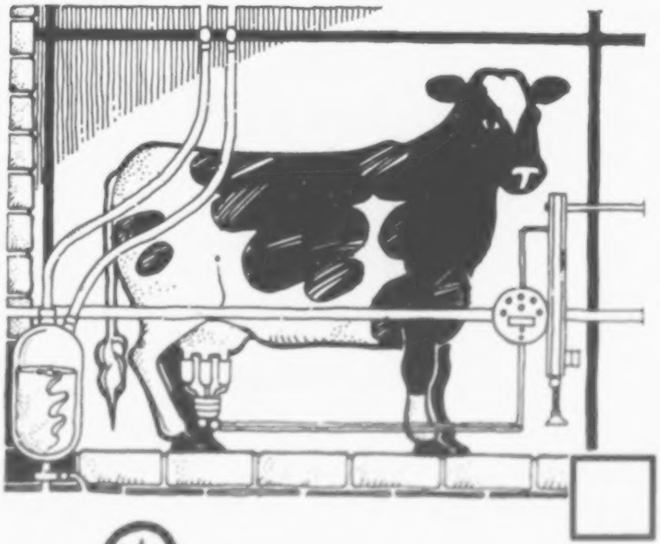
From Cow to School

Name ____________________

Look at the pictures. Number them so they tell the story in the right order.


DAIRY
MILK
MILK

☐



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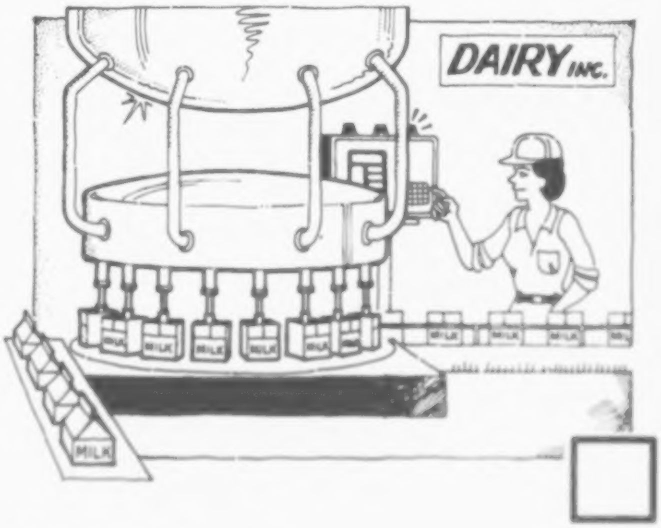
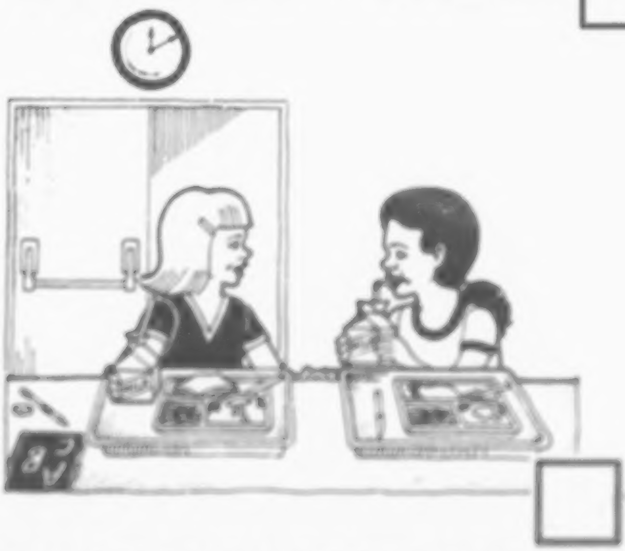

DAIRY INC.
MILK

☐



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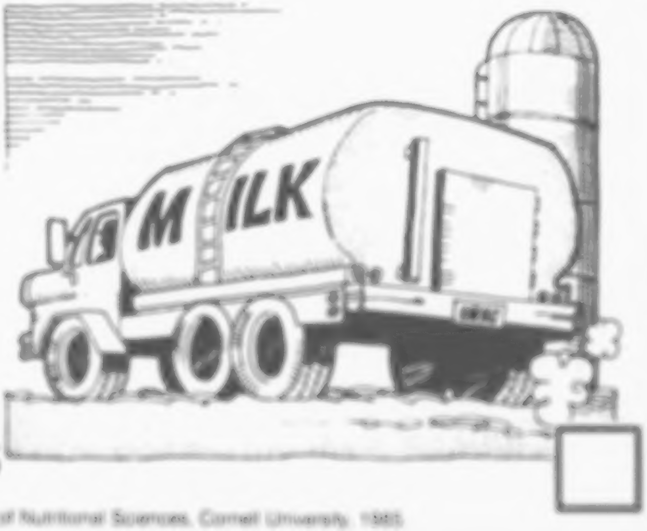

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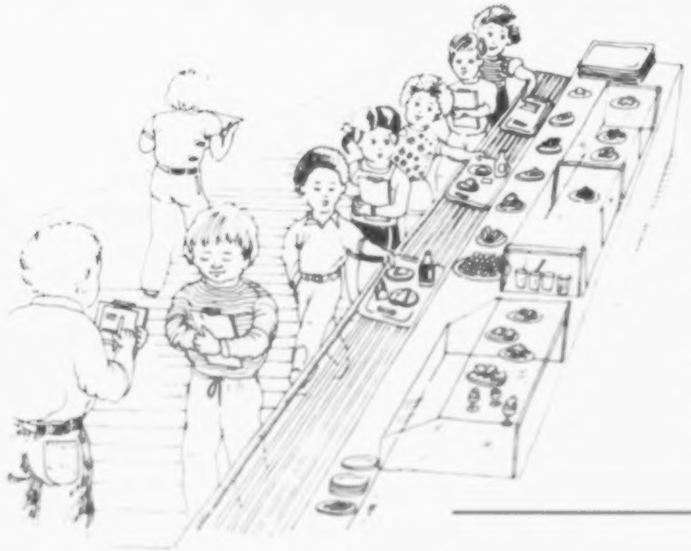
H

For Activities 18, 20, and 22

What I Ate

Name ____________________



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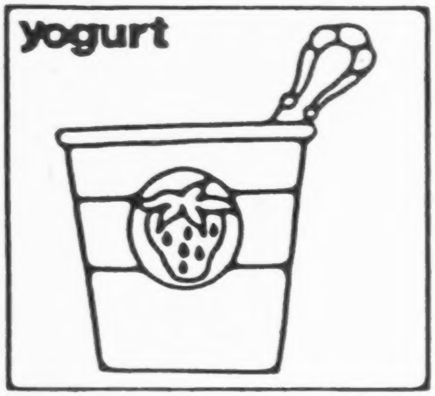
For Activity 20

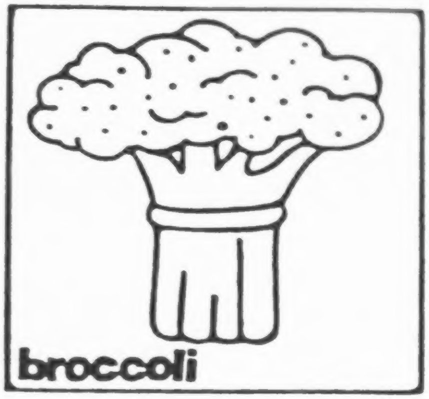
Dear Parent,

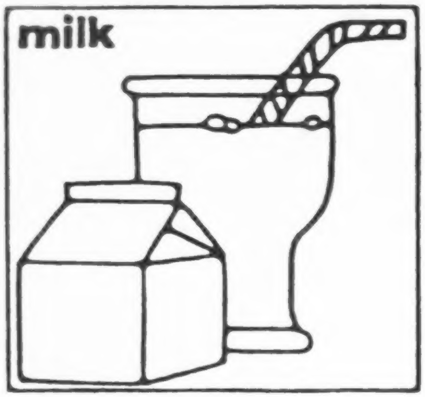
In class we have been talking about the importance of eating foods high in calcium, an essential nutrient. You have probably heard that growing children need to drink milk, a good source of calcium, to build strong bones and teeth. Unfortunately, many adults mistakenly believe that they no longer need food sources of calcium. This is not true. Low intakes of calcium through the adult years may contribute to osteoporosis, a disease characterized by weak and fragile bones and seen most often in postmenopausal women. Since calcium is essential for all people, it is wise for children to develop habits of eating calcium-rich foods that will last throughout life.

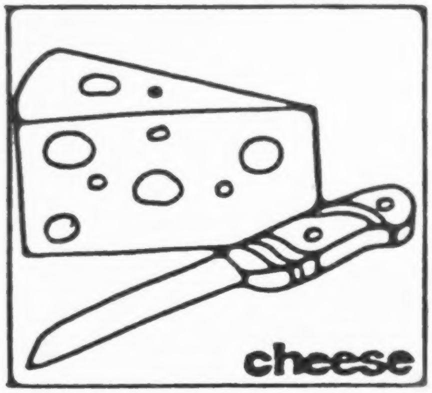
We continue to need sources of calcium because our bones are not as solid or "permanent" as they might appear. Rather, they are in a constant state of change, serving as "banks" where calcium is deposited and withdrawn. Although most of the body's calcium is in the bones, 1 percent circulates in the blood and is vital for such functions as contraction of muscles, conduction of nerve impulses, and clotting of blood. When this small but critical amount falls below a certain concentration the bones release some of their calcium. To help maintain and build strong bones it is recommended that children have at least three and adults have at least two servings of calcium-rich foods each day.

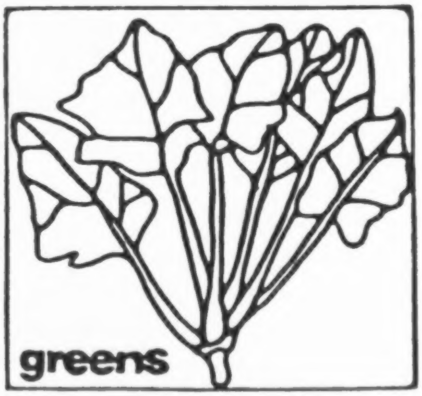
Some people may find this difficult because they do not like or tolerate milk. Others may not want to consume the fat that many dairy products contain. The following chart shows several foods that will provide as much calcium as one cup of milk. Skim and low-fat dairy products provide the same amount of calcium with much less fat.







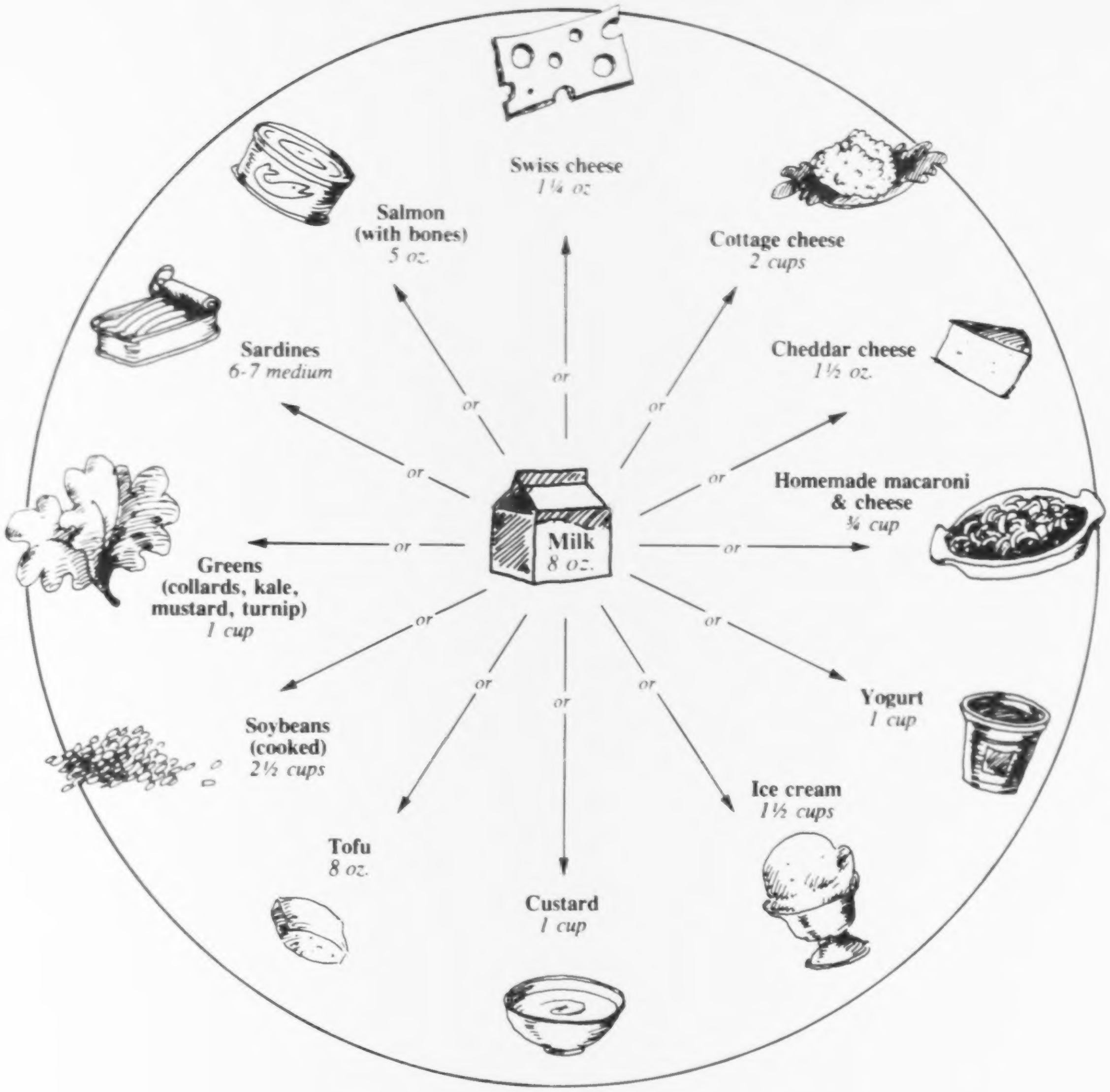




I

Milk equivalent chart

The following examples are equivalent to 1 milk serving:


Swiss cheese
1¼ oz
Cottage cheese
2 cups
Cheddar cheese
1½ oz.
Homemade macaroni & cheese
¾ cup
Yogurt
1 cup
Ice cream
1½ cups
Custard
1 cup
Tofu
8 oz.
Soybeans (cooked)
2½ cups
Greens (collards, kale, mustard, turnip)
1 cup
Sardines
6-7 medium
Salmon (with bones)
5 oz.
Milk
8 oz.
or

To increase the calcium in your family's diet, try some of the following ideas.

- Drink skim or low-fat milk for meals and snacks.
- Eat vegetables such as broccoli and leafy greens.
- Add dried beans, peas, or lentils to soups and casseroles.
- Eat sardines, salmon, and smelt, bones and all.
- Add nonfat dried milk to soups, casseroles, sauces, and meat loafs.
- Substitute low-fat yogurt for sour cream in sauces and dips.
- Encourage children to have milk on cereal rather than eating it dry.
- Allow children to make their own milk shakes and coolers.

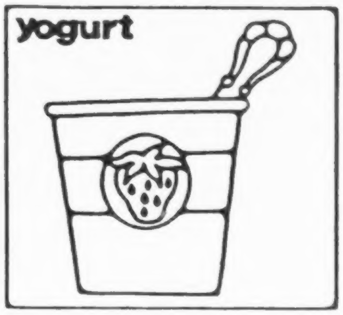
Reprinted with permission from *Become Calcium Conscious*, Nutrition Information Center, a component of the Clinical Research Unit, New York Hospital-Cornell University Medical Center, Memorial Sloan-Kettering Cancer Center, 1983.

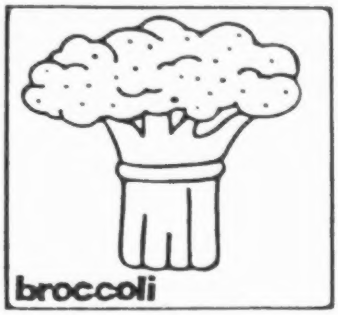
Estimado Padre:

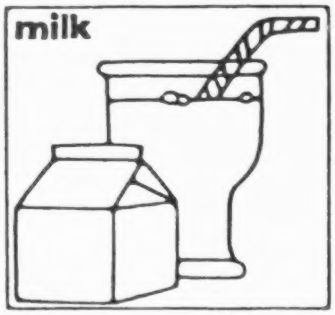
En el salón de clases hemos estado conversando sobre la importancia de comer alimentos ricos en calcio, un nutriente esencial. Usted probablemente ha escuchado que los niños en etapa de crecimiento necesitan tomar leche, una fuente buena de calcio, para formar huesos y dientes fuertes. Desafortunadamente, muchos adultos equivocadamente piensan que ya no necesitan fuentes alimentarias de calcio. Ésto no es cierto. Una ingestión pobre de calcio a través de los años de adulto pueden contribuir a la osteoporosis, una enfermedad caracterizada por huesos débiles y frágiles y que se ve más frecuentemente en mujeres en la época de la posmenopausa. Puesto que el calcio es esencial para todas las personas, es sabio que los niños desarrollen hábitos de comer alimentos ricos en calcio que durarán por toda la vida.

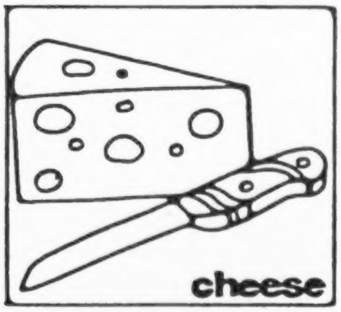
Continuamos necesitando fuentes de calcio porque nuestros huesos no son tan sólidos o "permanentes" como aparentan ser. Más bien, éstos están en un estado de cambio constante, sirviendo de "bancos" donde el calcio es depositado y retirado. Aunque la mayoría del calcio del cuerpo esta en los huesos, 1 porciento circula en la sangre y es vital para funciones tales como la contracción de los músculos, transmisión de impulsos nerviosos y coagulación de la sangre. Cuando esta pequeña pero crítica cantidad cae por debajo de cierto nivel los huesos sueltan parte de su calcio. Para ayudar a mantener y formar huesos fuertes se recomienda que los niños consuman por lo menos tres y los adultos dos porciones diarias de alimentos ricos en calcio.

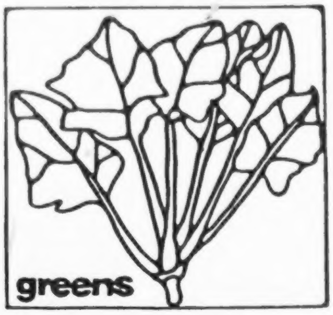
Algunas personas podrían encontrar ésto difícil porque no les gusta o no pueden tolerar la leche. Puede que otros no quieran consumir la grasa que muchos productos lácteos contienen. La siguiente gráfica muestra varios alimentos que proveen tanto calcio como un vaso de leche. Productos lácteos sin grasa y bajos en grasa proveen la misma cantidad de calcio con mucho menos grasa.





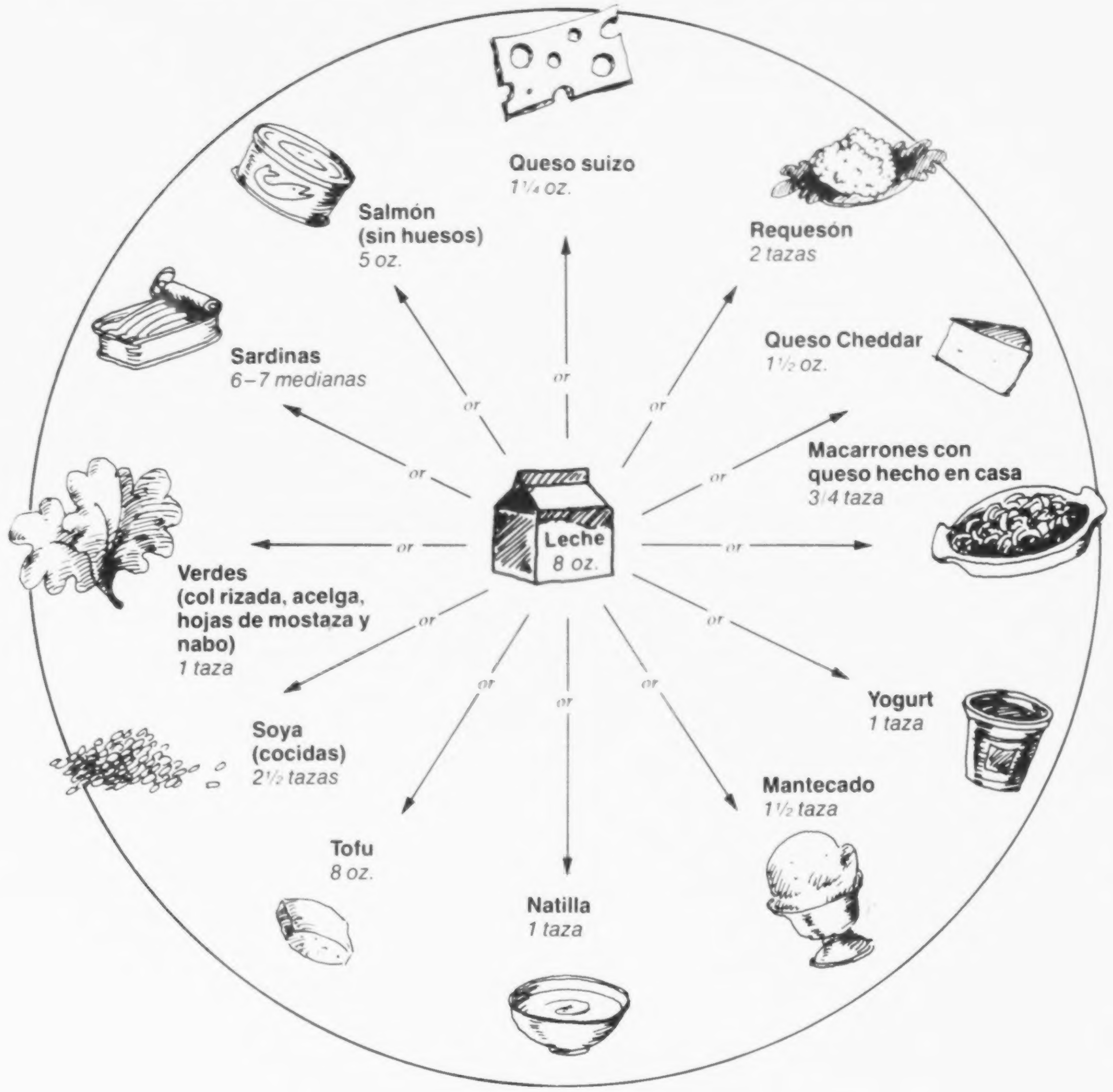






Gráfica — Equivalentes de Leche

Los siguientes ejemplos equivalen a 1 porción de leche:


Leche
8 oz.
Queso suizo
1¼ oz.
Requesón
2 tazas
Queso Cheddar
1½ oz.
Macarrones con queso hecho en casa
3/4 taza
Yogurt
1 taza
Mantecado
1½ taza
Natilla
1 taza
Tofu
8 oz.
Soya (cocidas)
2½ tazas
Verdes (col rizada, acelga, hojas de mostaza y nabo)
1 taza
Sardinas
6–7 medianas
Salmón (sin huesos)
5 oz.
or

Para aumentar el calcio en la dieta de su familia, pruebe las siguientes ideas.

- Tome leche sin grasa o baja en grasa con las comidas y meriendas.
- Coma hortalizas tales como el brécol y hojas verdes.
- Agregue habichuelas o frijoles secos, guisantes o lentejas a las sopas y cacerolas.
- Coma sardinas, salmón y esperlán con todo y huesos.
- Agregue leche sin grasa en polvo a las sopas, cacerolas, salsas, rollos de carne y albóndigas.
- En vez de crema agria use yogurt bajo en grasa en salsas y otros platos.
- Anime a los niños a echarle leche al cereal en vez de comérselo seco.
- Deje que los niños proparen sus propias batidas y refrescos de leche.

Tomado con permiso de "Become Calcium Conscious." The Nutrition Information Center una parte de la unidad de Estudios Clinicos. The New York Hospital—Cornell University Medical Center Memorial Sloan-Kettering Cancer Center 1983.

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